American FRUIT GROWER

MARCH 1946

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For almost half a century, General Chemical Company has been a leader in the development and manufacture of insecticides for agricultural and general pest control. Naturally, then—as a major producer of DDT as well—the Company has taken an early and continuous part in the intensive laboratory and field investigations of DDT. Out of this test work have come certain determinations regarding physical forms, specific toxicities, and compatibilities with other chemicals.

FOR APPLES, PEARS, PEACHES and Other Fruits and Vegetables

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See your Orchard Brand dealer or write for particulars as to when and how to use *Genicide-A* for combined control of codling moth and mites.

GENITOX* S50 50% DDT for Apples, Peaches, Grapes, etc.

Contains 50% DDT† milled with an especially selected carrier to make an intimate mixture that is of ultra-fine particle size, is readily wettable and has shown no tendency to agglomerate in spray tanks, whether in very hard or very soft waters. Genitox S50 will cover fruit and foliage exceptionally well without excessive run-off. It may be used wherever DDT is suggested or recommended by Federal or State experiment stations.

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Genitox S50 has given good kill of certain other insects that attack fruits and vegetables and is under investigation for others.

Genitox S50 is also the most economical form of DDT for spraying barns, cattle, food-processing plants, storage buildings, bunk houses, etc., for control of flies, lice, bedbugs, roaches and stored-product insects.

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GENITOX* D-50: A 50% DDT for preparation of dusts.

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GENICOP* DUST BASE: A finely milled, intimately combined DDT-Neutral Copper Concentrate, containing no clay or other carrier. For making DDT-Copper dust mixtures.

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FOLLOW ADVICE OF LOCAL EXPERIMENT STATIONS: In the use of DDT insecticides, the grower should be guided by the advice of Federal or State authorities . . . being sure to use only the DDT materials he knows can be relied upon for scientific and uniform compounding.

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MARCH 1946
VOL. 66 No. 3

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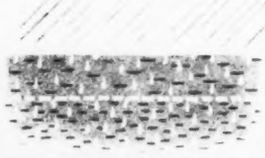
What the "TNT" DOES

The Oliver "TNT" turns the topsoil in the usual way *but also breaks up the subsoil to an adjustable maximum of 4 inches* of additional depth, and with only marginal mixing of the two layers.



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LETTERS TO THE EDITOR

Trees Won't Hold Fruit

Dear Sir:

We're turning to you for help. Dad set an orchard about six years ago and through careful tending, results have been exceptionally good. We have but one problem and it has us at the rope's end.

Dad set out three German plum trees and since they have been bearing, two of them refuse to hold their fruit. The third has done very well and gives wonderful fruit. The two trees referred to are the ones we'd like to have help on.

The fruit of these two trees, when about half developed, begins drying or shrinking at the stem and in a few days falls from the tree. There is no sign of rot or mold on the fruit. Can you tell us what this is and what remedy there is for such affections?

Valparaiso, Indiana George Haluska

Careful examination of your trees will probably show that the stems of the plums are affected and brown and dry as the fruit develops. We have seen this trouble in England as well as in America.

Try a weak bordeaux mixture (1 lb. to 75 or 100 gals.) while fruits are small.—Editor.

"Chocley" Crab Apples

Dear Editor:

I notice in your January 1946 issue that Mrs. T. C. Wilson of Louisville, Kentucky, writes and asks about the Chocolate crab apple. Its true name is Chocley—that's what we used to label them and that's what they were brought for.

There are still lots of them at my old home. I would be glad to send Mrs. Wilson some cuttings and she can have them grafted. Or I will graft her several and send them to her. Of course, if I graft them for her she will have to wait about two years for them.

The apple I refer to is a small long chocolate colored red. It is very sweet and juicy and is a good keeper. We use it mostly for cider.

Monroe, Virginia Donald S. Watts

Thanks Grower Watts for your generous offer of crab apple cuttings of an old-time favorite.—Ed.

Cob Corn for Rabbits

Dear Sir:

Perhaps someone of your readers might be interested in our simple and easy method of preventing rabbit injury to our fruit trees, berry bushes and shrubbery. We simply keep cob corn spread around in convenient places and have found that the rabbits prefer the corn to bark. Just place the corn out a week or so before expected snow-time in early winter to give the rabbits time to locate it. Last year, we neglected to start the corn early enough and the rabbits got to feeding on our raspberry bushes and shrubbery. As soon as the rabbits located the corn, they let the plants alone.

We have been following this practice for several years now with good results every year. First, we tried placing wire guards around the plants and trees but snow drifted in higher than the wires. Then, we tried painting with a repellent paint. This took a lot of time to apply and was not too successful. The rabbits like alfalfa hay too and they will keep the small piles of hay uncovered even after quite heavy snow storms. On moonlight nights, we have watched the rabbits run between the corn piles and the hay. They don't stop along the way to browse on shrubbery.

Our mice problem was taken care of by a pair of marsh hawks, aided by our dog, until someone shot the hawks.

We find your magazine very interesting and educational. No fruit grower, no matter how small, should be without it.

Brooklyn, Michigan R. O. Avery

Growers may want to file Mr. Avery's suggestion on the prevention of rabbit damage under "Things to try next winter"—and also make a mental note to start stocking up on a supply of corn.—Ed.

Too Close for Safety

Dear Editor:

We lost our orchard in the 1940 freeze and replanted at once, so have an orchard of 1500 five-year-old apples, 300 peaches, 7 acres in grapes, raspberries, etc. Our place has been considered the show place of the community with extensive landscaping—evergreen trees and the like. We have been here 22 years and have good buildings kept up in first class shape.

Our problem is a group of individuals who started an airport and flying school for civilians across the road from us. The runway is very close to our house and too close to the highway to be safe. We are in constant fear of a plane cracking up in our orchard, starting a fire and destroying everything.

As you know, an orchard takes years to bear—it is not as if a plane crashed in a cornfield. The city of Omaha put through an ordinance last March, 1945, that this part where we are located cannot have any commercial business; but this airport got started the year before the ordinance went into effect. Are there any other fruit growers who have been in such a plight? We have written to Washington, D. C., to Kansas City and our aeronautics inspector. They scold them for flying low over us, etc., but that is all that is done. Have we no rights to protect our health and property? This is a real hazard.

Benson Station
Omaha, Nebraska Sophus B. Andresen

It would seem that Grower Andresen has tried just about everything to remedy his situation. Have any readers ever found themselves in similar circumstances?—Ed.

Non-Bearing Apricot Tree

Dear Sir:

Just received my first copy of AMERICAN FRUIT GROWER and I enjoyed reading the Letters to the Editor.

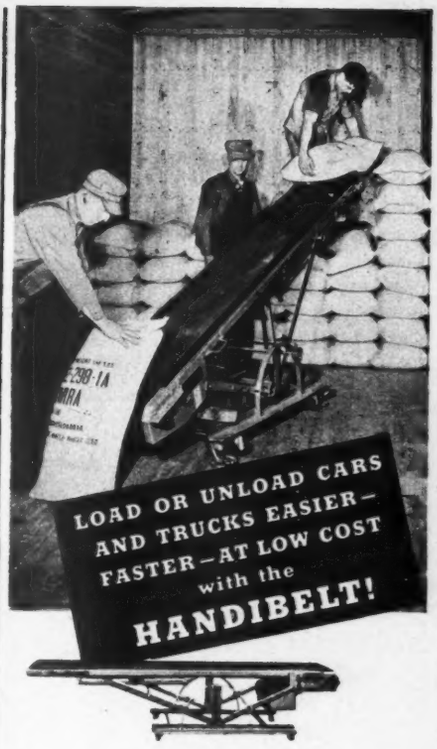
We have an apricot tree 7 years old that has never borne any fruit. We have been told that we should set another one near it; also have heard that if we drive rusty nails in the roots it will bear. What can we do to bring it into production?

Urbana, Illinois Walter J. Matthews

All commercial varieties of the apricot are self-fruitful, hence it should not be a pollination problem. However, practically all fruits benefit by some cross pollination and it might be worth trying.

There is nothing to the rusty nail idea. It will injure the tree to some extent which may encourage flowering but this is an unwise method of trying to solve the problem.

Fertilize with one-third pound of sulfate of ammonia for each year of the tree's age and spray according to recommendations of your experiment station.—Ed.



HARD-TO-GET-AT spaces are easily reached with the Handibelt—the all purpose incline, decline or horizontal portable belt conveyor. Its design allows the carrier belt to be horizontal at any height from 18 inches to 42 inches. It can be used as a piler elevating from 10 inches to 6 feet 3 inches or from 30 inches to 7 feet 6 inches, or any angle or degree between those extremes. Either end may be raised or lowered.

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A lot of research and experiment went into the development of these unique tractors. Take the power plant, for instance. You have a choice of either a high-compression straight gasoline engine or a gasoline-distillate engine—for your convenience.

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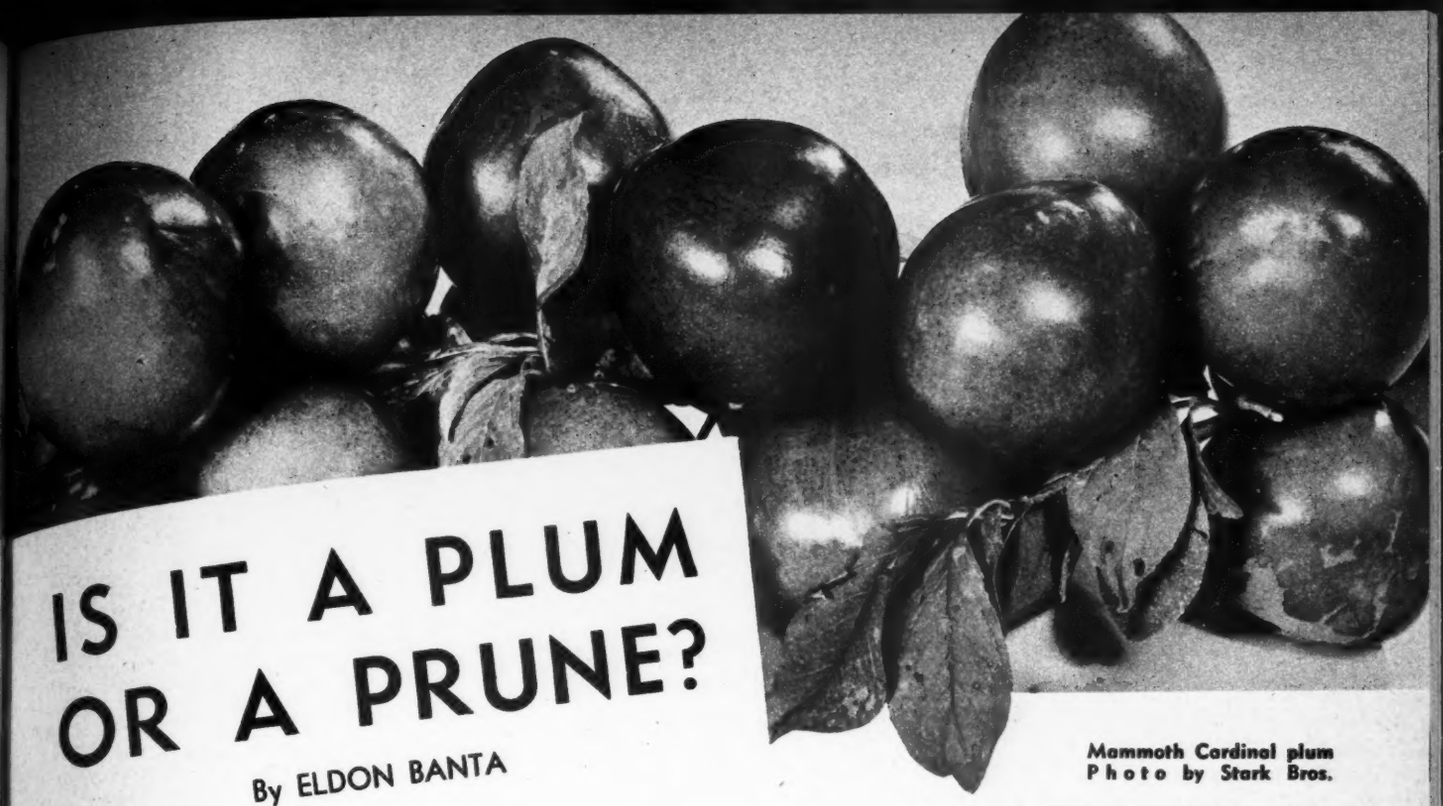


IS IT A PLUM OR A PRUNE?

By ELDON BANTA

Mammoth Cardinal plum
Photo by Stark Bros.

HOW can you tell whether it is a plum or a prune? This question frequently arises during the course of a discussion of plums. To some the answer seems a sort of mystery, but really it isn't. The idea is also prevalent among some that prunes only grow in California or along the Pacific coast in this country and in Europe. They contend that the prunes of California are different from the plums grown in the Eastern states, that is, fundamentally different.

The plum belongs to what our scientist friends call the genus Prunus. It is a member of the great rose family along with practically all of our other deciduous fruits grown commercially. The family is subdivided into several "genera" and the plum (or prune) fits into the one mentioned above, Prunus. You might call this the plum's family name because there are many different kinds of Prunus, each kind being termed a "species". All stone fruits belong to this genus, Prunus. Obviously they are not all alike and each group of plants that is similar in certain characteristics is separated into a separate catagory or "subgenus", which may be subdivided into more detailed groupings. From the botanical viewpoint, the final name of a plant includes first its genus name and second its species name. For example the European plum is given the name Prunus domestica; all names in technical literature are written in Latin form. Each other type of plum has its species name placed after the genus name. Each genus may then be divided into subspecies and then further into varieties. depending upon whether there are sufficient differences in plant characters to warrant a separate grouping. Horticultural varieties, as Grand Duke and Reine Claude plums, do not possess separate Latin names and consequently are not botanical varieties. It is however the horticultural varieties in which fruit growers are interested.

Now we shall go back to the question of determining whether a particular plum is a plum or if it is a prune. Is there any botanical difference between a plum and a prune? Are the trees members of different

(Continued on page 43)

PRUNE AND PLUM PRODUCTION FROM 1890-1940*

Year	Farms Reporting		Number of trees				
	Number	Percent of all farms	Total	Increase or decrease (−) Number	Increase or decrease (−) Percent	Not of bearing age	Of bearing age
1940	697,062	11.4	24,759,156	−5,617,168	−18.5	3,095,887	21,663,269
1935	921,900	13.5	30,376,324	−3,537,496	−10.4	3,097,780	27,278,544
1930	901,462	14.3	33,913,820	−3,717,019	− 9.9	4,514,409	29,399,411
1925	1,236,416	19.4	37,630,839	7,803,278	26.2	(3)	(3)
1920	[5]915,829	14.2	29,827,561	− 541,029	− 1.8	9,375,268	20,452,293
1910	[5]1,120,130	17.6	30,368,590	(3)	(3)	6,923,581	23,445,009
1900	(3)	(3)	(3)	(3)	(3)	(3)	30,780,892
1890	(3)					(3)	7,078,191

QUANTITY HARVESTED[1]

Unit of bu.	Amount			Value (dollars)			
	Total	Percent increase or decrease (−)	Yield per tree of bearing age	Total	Percent increase or decrease (−)	Average per unit	Average per tree of bearing age
1940	25,646,331	10.1	1.2	19,280,549	−2.9	0.75	0.89
1935	23,296,579	16.3	0.9	19,852,955	6.5	0.85	0.73
1930	20,038,147	------	0.7	18,645,942	------	0.93	0.63
1925	(3)	(3)	(3)	(3)	(3)	(3)	(3)
1920	19,083,942	23.3	0.9	40,984,423	297.9	2.15	2.00
1910	15,480,170	76.6	0.7	10,299,495	------	0.67	0.44
1900	8,764,032	243.1	0.3	(3)	(3)	(3)	(3)
1890	2,554,392	------	0.4	(3)	(3)	(3)	(3)

*1945 census not complete.
[1]Data for quantity harvested and value are for the calendar year preceding the date of enumeration.
[3]Not available.
[5]Farms reporting trees of bearing age.

PROMISING PLUM VARIETIES

By RICHARD WELLINGTON

New York Experiment Station

Formosa, a handsome Japanese plum, bears exceptionally large, well-flavored fruit.

THE plum is one of our most valuable and widely grown fruits for it thrives in every state of the Union. This wide range of adaptation is due to the many varied species of the plum and to the readiness with which many of them intercross. Obviously in a brief paper on varieties it is impossible to cover the entire United States and therefore this article will be restricted mainly to the northeastern area, that is, the section east of the Mississippi River and north of the Carolinas.

The Asiatic types, known as the Japanese plums are generally highly aromatic and ripen early. To the Oriental they are considered superior to any other plum but to the Occidental they are judged inferior to the European plum. The earliness and attractiveness of the Japanese varieties, however, give them a place in our planting program.

The hybrids between the Japanese and American types which have been developed by Hansen in South Dakota and the fruit breeders in Minnesota are much superior to the American types in size and quality, but so far have not made much headway where the Japanese and European plums can be grown. Possibly some of the better types, as the Underwood, Kahinta and Monitor may eventually find a place, especially for culinary uses.

About 1870 the Japanese plums were introduced into America and for many years they received great publicity. In fact at one time they were over-planted and gave the plum industry a serious set back. Due to the difficulty in translating Japanese names and to the introduction of the same variety under different names, great confusion existed for a long time in the nomenclature of the Japanese varieties. Luther Burbank made many importations and intercrossed many of the Japanese varieties. To him all growers of the Japanese plum are deeply indebted.

The European plum which includes the prunes, Gages, Damsons, Mirabelles and many other types is by far the most important of them all. Unfortunately very little breeding work has been carried on in this group and consequently most of the varieties that we now have originated from open-pollinated seed. About 1790 Prince of Long Island sowed the seed from 25 quarts of Green Gage plums and from this seed was obtained the Imperial Gage, Red Gage, Yellow Gage and probably the Washington. Burbank produced the Miracle and Conquest, small so-called seedless plums and similar to their parent Prunes sans noyau listed as early as 1628 by Le Lectier of France, and also the Giant, Sugar Prune and Pearl.

The New York Agricultural Experiment Station has grown only 1000 seedlings and fruited about 600. From this small population were obtained the Stanley, Hall, Albion and American Mirabelle. The success of this breeding work warrants a decided extension of a breeding program.

Fortunately for America, the European varieties thrive in eastern states and the West Coast and therefore we have the benefit of hundreds of years of natural selection. Just how to list the promising varieties is a problem. For instance, they might be grouped according to species, suitability for commercial and home plantings, time of ripening, etc. Since comparatively few of the hundreds of existing varieties will be mentioned. They are listed for the most part according to the time of ripening.

Varieties

Early Laxton, the earliest European variety, was obtained from Laxton Brothers, Bedford, England. Tree is small and spreading but highly productive. Fruit is medium in size, oval, yellow nearly covered with red and has a thick lilac bloom. Flesh is yellow, juicy, melting, sprightly and aro-

The French Damson plum is gaining in popularity due to the large size of its fruit.

The large, attractive and good quality fruit of Hall, a blue plum, brings a ready sale.

matic and good in quality. Main value is for local and roadside markets.

Beauty, one of Burbank's productions, has proved to be the best of the very early Japanese varieties. At Geneva, N. Y., it usually ripens the last week of July. Tree is vigorous and productive; fruit medium in size, roundish conic, medium red with a lilac bloom; flesh yellowish tinged with red; juicy, tender and stringy, subacid to sweet; quality good; stone clinging. Desirable for the early market. Although partially self-fruitful, it is deemed advisable to interplant with other Japanese varieties.

Formosa, another of Burbank's Japanese productions, is most attractive and bears exceptionally large, handsome, well-flavored fruits. Tree has an upright-spreading habit and bears heavily every other year. Fruit ripens about ten days after that of Beauty. Shape of fruit is oval to slightly cordate; skin medium tough and thick greenish yellow nearly overlaid with red; flesh firm, juicy, melting, light yellow, sweet with a pleasing flavor; good; stone slightly clinging.

Santa Rosa, also originated by Burbank is proving to be one of the most profitable of the Japanese plums. It's tree is large, vigorous, upright-spreading and prolific. Fruit ripens with or shortly after Formosa and averages large and oblong—conic in shape. Skin is medium in thickness, tough, dark purplish crimson with a thin bloom; flesh greenish amber with reddish tinge near skin, coarse, moderately tough, juicy, sweet, aromatic, good; stone clinging. Growers report fruit meets ready sale.

California Blue, an attractive blue European plum ripens with Formosa, the exact time varying with the yield—the heavier the crop the later the ripening. Fruit is medium in size, roundish, slightly tart and good. Recommended for starting the market. None of the very early plums should be planted extensively, unless one has a special market.

Clyman, an European type that originated in California, ripens with or just before California Blue and although not quite as attractive should have a place among the early plums. Fruit is medium in size, oval, purplish-red, covered with thick bloom; flesh pale yellow, juicy, sweet, mild but pleasant; good; stone free.

Oullins, a French variety, ripens about ten days later than Clyman and is the first of the Gage group to ripen. Tree is large, vigorous, open-topped and productive. Fruit medium in size; skin thin, light yellow with thin bloom; flesh pale yellow, somewhat dry, firm, sweet, not high in flavor; good; stone half-free to free.

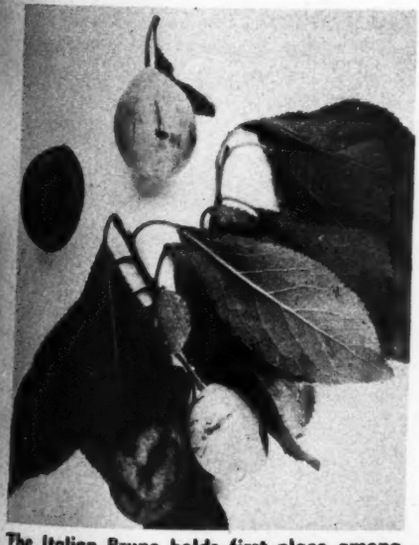
(Continued on page 26)

Stanley is becoming a commercial plum.

Beauty is an early ripening Japanese plum.

Washington is a high-quality gage type plum.

The Shropshire Damson is an old standard variety.



The Italian Prune holds first place among the plums of the eastern United States.

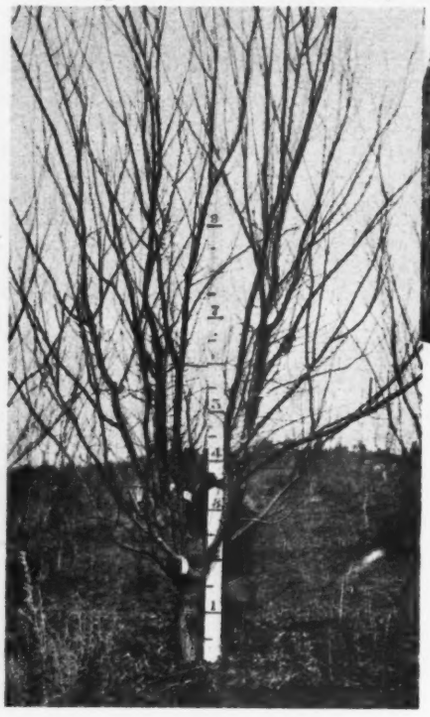
Albion, proved to be a good shipping plum, is also promising as a very late fruit.

PLUM PRODUCTION In The Pacific States

By L. L. CLAYPOOL,
University of California

THE Pacific states of California, Idaho, Oregon and Washington account for all of the commercial production of dried prunes and much the greater part of plums and prunes used as fresh fruit or going into cans. Following World War I, there was an accelerated expansion of plum acreage especially in California where in 1924 and 1925 nearly 240,000 acres were in plums and prunes. At present there are about 170,000 acres in California of which 140,000 acres are prunes. Present acreage figures are not available for Washington, Oregon and Idaho, but from current production it is estimated that there are about 45,000 acres in bearing. The only species of plums of commercial importance in the Pacific states are: (1) Prunus domestica—the European plum, and (2) Prunus salicina—the Japanese or Oriental plum. Much confusion exists in the relationship of plums and prunes. Actually the word prune designates those varieties of plums in which the sugar content is sufficiently high that they may be dried whole without fermentation at the pit. All prunes are varieties of the European plum species.

(Below left)—Unpruned Santa Rosa plum tree 4 years from graft. (right) Same tree except that it has been pruned. Note heavy thinning out of wood on this variety.



Varieties of the European plum are well adapted to culture in all of the deciduous fruit growing regions of the West. However, the Oriental plum, while well adapted to the interior valley and foothill regions of California, is not well suited to the extreme coastal climate in California or in general to climatic conditions of Oregon, Idaho and Washington. This species, although being a vigorous grower and heavy producer, blooms very early making it subject to serious injury from late spring frosts. The trees of most varieties, also, are injured in unusually cold winters in the Pacific Northwest states.

Irrigation of a prune orchard by flooding following a winter of low rainfall.

The purpose for which the fruit is produced will largely determine the location of production and the varieties that will be grown. Plums for fresh shipment are grown mainly in the interior valley and foothill regions where summer temperatures are high, such as in the Boise-Payette district in Idaho, the Yakima Valley in Washington, the Milton-Freewater-Walla Walla district along the Oregon-Washington line, and the Sacramento-San Joaquin Valleys of California. Drying varieties are grown mainly closer to the coast where summer temperatures are lower favoring high quality of the dried product. The principal districts are the areas adjacent to San Francisco Bay in California, the Willamette Valley in Oregon, and Clark County in Washington.

California produces a succession of varieties of shipping plums extending over the season from June into September. In order of ripening the most important varieties are Beauty, Tragedy, Santa Rosa, Duarte, Wickson, Kelsey and President. Santa Rosa is increasing in popularity and now makes up nearly 50% of the non-bear-

(Continued on page 30)

SUCCESS WITH PLUMS

Presenting the Experiences of Two Ohio Growers with Plum Varieties and their Culture

By ELDON BANTA

THERE is no better way of learning how to do a thing than to observe someone who is proficient in that very procedure in which you yourself desire perfection. Our knowledge of fruit growing, as of any other subject, arises from our own experiences plus those of others —written, verbal or otherwise.

So it is with interest and enlightenment that we turn our attention to plum growing by two prominent Ohio fruit growers, Hiram Burkholder and Ben Davis, who have achieved a high degree of success in this venture. The diversified fruit plantings of these two growers lay for the most part in the sandy loam soils within the vicinity of Clyde, Ohio. This is a rich area in which fruits do exceptionally well when properly cared for. The largest sour cherry plantings of Ohio are concentrated in this general area. Many of the fruit farms, including the two with which we are concerned, are quite diversified, raising three or four kinds of tree fruits and a few are planted to small fruits, as well.

Hiram Burkholder, eighty-three years young, is one of Ohio's oldest active fruit growers, and without a doubt one of our leading authorities on plum varieties and their culture. His wealth of knowledge has come largely from his own experiences in growing well over a hundred different varieties of plums during his lifetime to the present, together with his keen observation of varieties cultivated by other growers and experiment station men. His knowledge of varieties does not stop with plums, for he can speak intelligently, if not authoritatively, about varieties of every commercial tree fruit, grapes and many of the small and bush fruits. At one time or another Mr. Burkholder has grown a number of varieties of practically all the deciduous fruits on his farm just east of Clyde, Ohio.

Eighty-three-year-old Hiram Burkholder is one of Ohio's oldest active fruit growers.

But plums have been more or less a speciality with Mr. Burkholder, and a profitable one too. His first experience with plums came in 1896 when he leased an orchard of Lombards. The following year, 1897, he made his first planting of plums, largely to the Lombard variety. Then during the following years he planted and tested many varieties, always on the alert for an improved variety which could be placed under more extensive cultivation. Many more plums have been discarded from his plantings because of defects than have remained to become highly productive and profitable varieties.

Even though his eighty-fourth year is creeping up on him, Mr. Burkholder is still planting plums and other tree fruits. What varieties is he planting, and why should he be planting them? That is the obvious question. His reply does not falter, nor is it filled with "ifs" and "ands." There is to him one plum variety that tops all others at present, and that is the *Stanley* prune.

Stanley trees begin bearing exceedingly young, often when only two or three years of age. The tree itself is a vigorous grower and consistently productive. The fruits are large and attractively blue, mature well on the tree, handle easily and ship satisfactorily. Market demand is high for this variety in the East and housewives like it for canning.

If there was to be a "Queen of plum varieties," Mr. Burkholder would probably name *Imperial Epineuse* for the title in so far as flavor and quality are concerned. It is a very large plum of the prune type, but its dull purplish, unattractive color masks the deliciousness of its flesh. The tree is a little late to come into bearing.

For sale to the processing plant, Mr. Burkholder grows the *Grand Duke* variety. The tree is easily grown, comes into bearing young and bears consistently and abundantly. One of its chief advantages is the adherence of the flesh to the pit, though not as tight as in certain other varieties. The flavor and quality of the fruit are good and it has

(Continued on page 32)

Extreme right — A view of the Davis plum orchard. These 11-year-old trees are of the Stanley prune variety.

Below—Bunkhouse on the Ben Davis fruit farm where fruit pickers are housed during the harvest season. Center—Ben Davis, Ohio fruit grower, who has thirty acres planted to plums.

A promise of Spring in the Appalachian Area.—Photo by Norfolk & Western Ry.

NATIONWIDE FRUITS

APPLES

Training Young Apple Trees

Training the young non-bearing apple tree is an operation which F. H. Howlett and C. W. Ellenwood, of the Department of Horticulture of the Ohio Agricultural Experiment Station, say demands knowledge of how a tree grows, plus good judgment. At the Ohio Experiment Station at Wooster, a tree-training experiment involving young trees of Stayman Winesap, McIntosh, and Delicious is now in its sixth year.

The treatments include the heading of the one-year-old whip at 44 inches as compared with the conventional 32 inches practiced by the nurseryman. Heading to the greater height has not resulted in trees outstandingly superior to those headed to 32 inches, although theoretically such trees should permit a superior spacing of the primary scaffold branches. Other trees headed to 44 inches had the superfluous shoots not desired for building the primary scaffold system removed in June. At this time a rather satisfactory selection of the three or four laterals required for the permanent framework was made. In this respect, deshooting was preferable to all other treatments.

The crotch angles of the deshooted trees were not appreciably less than those of the trees headed to 32 inches if the selection was delayed until the beginning of the third year. However, considerable difference in crotch angles exists between trees of the Stayman Winesap, McIntosh, and Delicious varieties, with Delicious possessing the smallest angle. Moreover, this variety represents a special problem in tree training. In training a given variety no arbitrary rule can be uniformly applied, although it should be emphasized that all possible provisions should be made for developing a strong framework in apple varieties. Training the young tree is one of the most important single operations in establishing and maintaining a profitable bearing orchard.

CITRUS

Citrus Staff Appointments

An expanded citrus research program is being inaugurated at the Citrus Experiment Station, Lake Alfred, as provided for by the 1945 Legislature, according to Harold Mowry, director of the University of Florida Agricultural Experiment Stations.

Director Mowry announced recently the appointment of three new staff members to work with Dr. A. F. Camp, vice-director in charge of the Citrus Station.

Dr. James T. Griffiths has become entomologist and Ernest P. DeCharme plant pathologist, the latter to work especially on citrus decline. Dr. Harold C. Beard has been named temporary chemist to initiate preliminary research on citrus processing.

PEARS

Monarch of Pear Trees

Fears that the end of the famous Endicott pear tree in Salem, Massachusetts might be near were allayed in the spring of 1945 when the tree burst into bloom at the beginning of its 313th year.

When John Endicott was Governor of Massachusetts he became much interested in fruit farming, and he sent to Dorchester, England, for a pear

tree. By the time the tree arrived it was in a rather dried-up condition. But being carefully planted and watched over by the Governor, it survived and has subsequently become the oldest fruit tree in America.

Scientists have called it "one of the seven wonders of the world." The U. S. Department of Agriculture calls it "the monarch of all pear trees in this country." The fruit is the small, sweet, old-fashioned sugar pear variety. When Governor of Massachusetts, Calvin Coolidge, a descendant of Governor Endicott, visited the tree, he pronounced it the most remarkable landmark in New England. General Washington, Daniel Webster, and Abraham Lincoln visited this tree and ate of its fruit.

When Governor Endicott died in 1665 he committed this tree to his daughter's care, making special mention of it in his will. The Endicott estate has only once left the hands of that family since then, and it has been the pleasure of each succeeding heir to send samples of this tree's pears to many of our Presidents, and to many members of European royalty. The soil has gradually collected about the trunk until the two main branches appear to rise from the ground as separate trees.

The famous Endicott pear tree in Salem, Mass., a New England landmark, is known as the monarch of all pear trees in the U.S.

In honor of this tree, the State of Massachusetts struck off 200 medals for distribution in 1930. The reverse of this medal shows the two trees, springing from a common rootstock. The obverse shows a fine bust of Governor Endicott. On this medal the Governor's name is spelled "Endecott," which would indicate that this was the accepted form at that time.

QUINCE

Growing Quinces for Wine

In 1934 after the Star Straw Cover Company of Sandusky, Ohio, had perfected a method of making quince wine, the owners of the company looked around for a source of quinces on the market and found that there weren't very many to be had from a commercial standpoint. So there wasn't anything for the company to do but to enter the quince growing business if they wanted to continue making quince wine.

Mr. William H. Hommel of this company reports that in 1934 they didn't even have an idea of how long it would take for quince trees to bear. When the company began soliciting the nurseries for quince trees, nurserymen said that they never heard of an order for ten quince trees—and it was only by signing contracts for at least one hundred trees at a time of each variety, did the Star Straw Cover Company succeed in getting nurserymen and growers to graft high-quality varieties of quinces for them.

Now—twelve years later—the company boasts of eight varieties of quinces. In 1945 they had between 5000 and 5500 trees coming into bearing.

The 1945 crop was very poor because of the late frosts that killed many of the quinces, but Mr. Hommel believes that the outlook for 1946 might be some 5000 bushels of the fruit. He says, "We find quinces very easy to grow but they need plenty of spraying in addition to two dormant sprays, one in November and one in February. If growers will do this they will have perfect quinces without any worms on the inside of them. We learned this after hard experience."

The emblem or trademark of the Star Straw Cover Company's quince wines is "La Cloche" which means in English "The Bell." It appears on all the company's bottles and is reminiscent of a "sec" that flourished in Sandusky in 1820. The bell, which is pictured on this page, was brought to Sandusky from England.

This bell, which is used as the emblem of the Straw Cover Company's quince wines, was brought to Sandusky, from England.

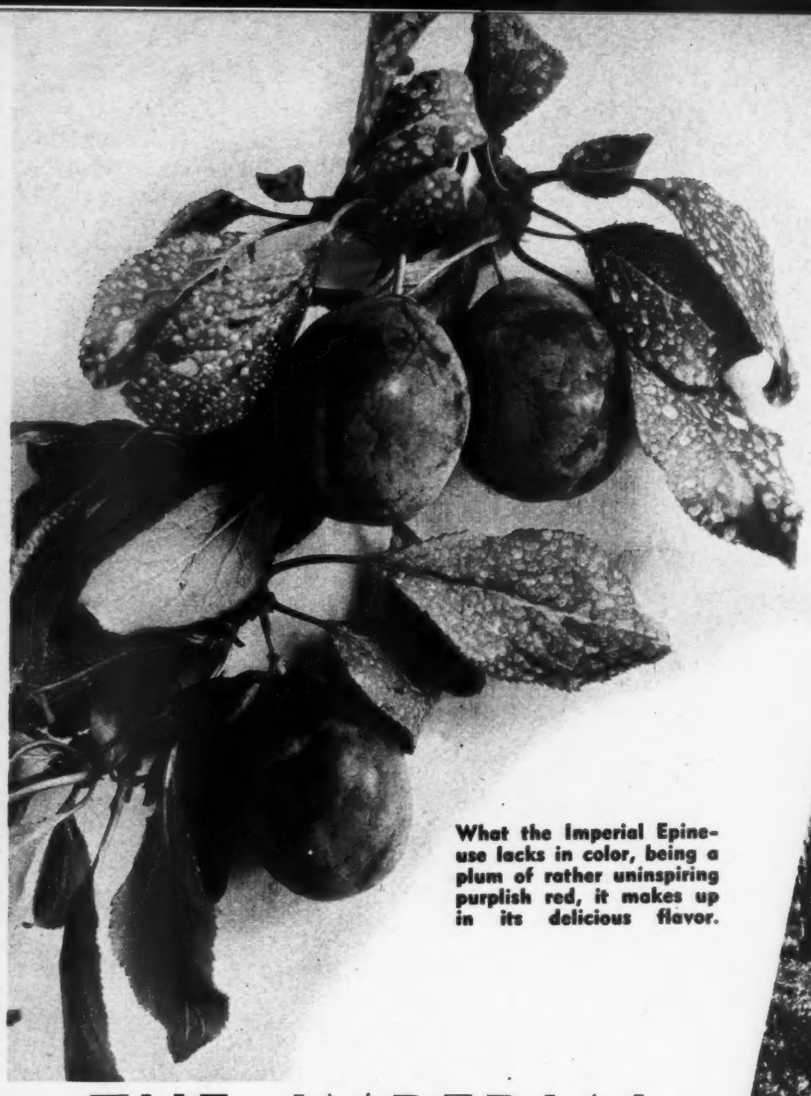
BERRIES

Control of Gooseberry Diseases

Diseases which heretofore have proved a limiting factor to gooseberry production in New York State, particularly in the Hudson Valley, have yielded to a control program developed in tests carried on by plant disease specialists of the Experiment Station at Geneva, New York.

Powdery mildew and leaf spot, generally prevalent throughout the State, and rust which occurs in the Hudson Valley have been under investigation by the Station scientists since 1937 in an effort to work out an economical yet efficient spray schedule for gooseberries. Earlier control measures proved costly in time and money and

(Continued on page 29)



What the Imperial Epineuse lacks in color, being a plum of rather uninspiring purplish red, it makes up in its delicious flavor.

Approximately 60,000 acres of prunes are located in the Santa Clara Valley of California. Above is shown one of the Valley's young prune orchards at blossoming time.

THE IMPERIAL EPINEUSE

PLUM OF QUALITY AND DISTINCTION

By H. B. TUKEY, Michigan State College

FOR a prune-type plum of remarkable richness, flavor and quality, the Imperial Epineuse is hard to equal. It is an old French variety, having originated as a chance seedling about 1870 in an abandoned monastery near Clairac, in the Valley of Lot. This is the great prune district of France. From the home of its origin it bears the synonym Clairac Mammoth. In fact, it was first introduced to the United States under this name.

In 1883, Felix Gillet of Nevada City, California, received the variety in a shipment of plum varieties from France. Three years later, John Rock of Niles, California, received the variety in a similar introduction of plums.

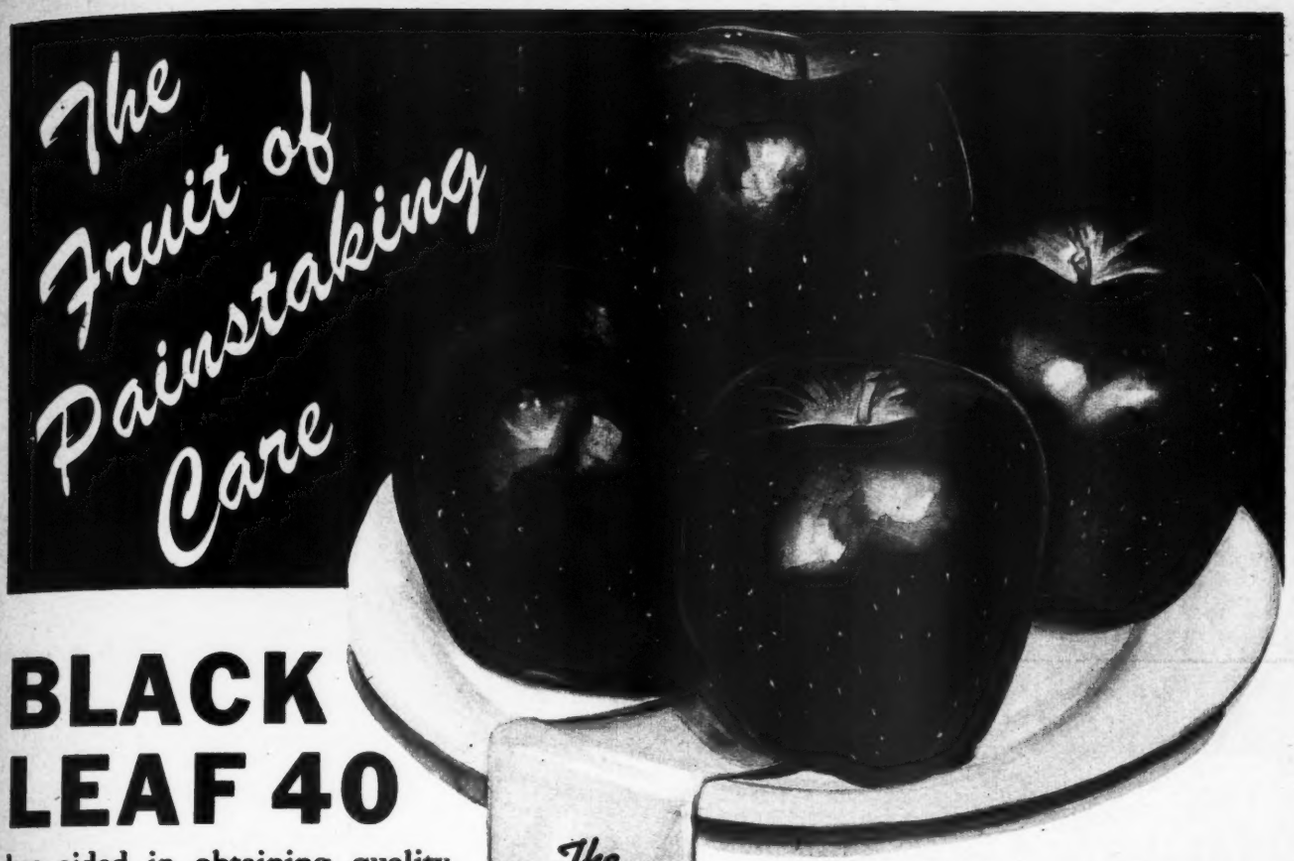
In appearance the fruit has excellent size to recommend it. It is one of the largest plums in the prune group. The shape is slightly obovate, more oval than the French prune. In color, however, it falls short, being a rather uninspiring purplish red with bronze tinge, darker on the sunny side, mottled, overspread with thick bloom. Nevertheless, the excellent quality of the fruit is so soon associated with the characteristic appearance that it becomes a trademark of identification which the connoisseur of plums quickly learns.

The season of fruit ripening is rather late—mid-September in western New York. In fact, the late season of ripening makes Imperial Epineuse a questionable variety in regions of short growing season. In the more favored horticultural sections of the East, however, it will develop properly if given sufficient time on the tree. In the Pacific Northwest, this is no factor.

The flesh of the fruit is greenish-yellow, somewhat fibrous, meaty, and sufficiently tender. The skin is thin. The stone clings. The flavor is sweet, rich, aromatic, to give an article altogether as choice as anyone could desire. Analyses show it to run as high as 20 per cent sugar. The average person who samples a soft, well-ripened fruit of Imperial Epineuse remarks unbelievably on the choice delicacy that the plum can produce. Too few people know a plum of quality. The lowly state to which this fruit has descended in popular esteem is largely due to the poor quality of the varieties offered to the consumer. With varieties like Imperial Epineuse to lead the way, a revival in the fresh plum industry could be expected.

The tree of Imperial Epineuse is large, sturdy, vigorous, and spreading. Unfortunately, like so many choice varieties it is a little shy in bearing. Nevertheless, it is grown on the Pacific Coast as one of the choice prunes, and some fruit is shipped to eastern markets as fresh fruit.

For the East, Imperial Epineuse is a variety that merits more attention. If it cannot make a place for itself in commerce, it certainly has its place with the increasing list of fruit fanciers who are looking for choice items of quality and distinction. In this class it can hold its own against all comers.



BLACK LEAF 40

has aided in obtaining quality fruit for more than a generation. Timely spraying with Black Leaf 40 prevents deformed fruit and foliage, controls green and rosy aphids, bud moth and red bug. Black Leaf 40 may be combined with all standard sprays, is effective and not harmful to buds and leaves.

The Reward of Constant Vigilance

Record breaking demands continue for nicotine products essential in protection of food. . . . .We suggest that growers conserve their nicotine supply for their most important protective sprays of the growing season.

BLACK LEAF 155

For codling moth cover sprays, use Black Leaf 155. Its non-caustic protection for foliage permits the manufacture of more food by the leaves, and matures fruits of larger size. Black Leaf 155 controls codling moth, aphids, leafhoppers, bud moth, leaf miners, pear psylla and grape berry moth.

Insist on Original Factory Sealed Packages for Full Strength.

TOBACCO BY-PRODUCTS & CHEMICAL CORPORATION
INCORPORATED • • LOUISVILLE 2, KENTUCKY

By proper fertilization a large amount of mulch material can be grown in the orchard.

PRODUCTION OF MULCH MATERIAL

By J. H. GOURLEY

Ohio Agricultural Experiment Station

THE use of mulch about fruit trees as a definite and positive system of culture has gradually grown during the past fifty years until today it is used extensively in many sections of the United States and Canada. It is really a very old practice although it never gained much of a foothold in commercial orchards until it was given special emphasis by F. P. Vergon of Ohio in the 1890s.

The use of small, flat stones about fruit trees was practiced in England in the 1700s and from early times in parts of China. It's another example of a good thing that has taken a long time to take hold.

Its merits and its disadvantages have often been proclaimed and our purpose at this time is to call attention to the most serious problems to its use, namely, securing a supply of suitable material for commercial plantings.

Kinds of Material to Use

Since the purpose of a mulch is to maintain a more or less permanent cover of the soil, it is obvious that one which is somewhat resistant to rapid decomposition has an advantage. Yet such a one contributes less nutrients to the soil than one which is relatively high in nitrogen and which decomposes rather quickly. Each type, then, has its advantages and we compromise between the two extremes.

A ligneous material like sawdust or wood shavings resists decay longest and will conserve moisture satisfactorily. Neither have particularly increased acidity of the soil nor resulted in any other disadvantage which we have noted. It takes a tremendous lot of sawdust to mulch a large tree. It requires a large amount of water to thoroughly wet it through, and any additions of nutrients from its decomposition is very slow. Yet both of these materials are used as well as small branches and other woody materials. It would be an advantage if they could be mixed with a portion of less ligneous vegetation such as straw, hay, weeds, alfalfa, etc. Then both advantages could be secured.

Some grasses are much more ligneous than others, such as straw, orchard grass, canary grass, sudan grass, and others. They well serve the objects sought.

Then there is the material which is high in cellulose which decomposes much quicker, such as clovers, alfalfa, blue grass, and soy bean hay. These materials will supply rather large quantities of nitrogen, potassium, some phosphorus, boron, calcium, magnesium and others. The greener they are when cut the more readily they decompose and the more nutrients they supply.

In a young orchard rye will produce a large quantity of mulch material and is often used provided the trees are well fertilized and the rye is not grown close to the tree. German or Golden millet is low in nitrogen and is a good mulch material. Timothy and clover mixture gives a good nitrogen balance. In general if the material contains more than two percent of nitrogen it will add this element to the soil and if less than that, it will utilize the nitrogen already present.

Above is a well mulched orchard showing the vigorous condition of the fruit trees.

Ladino clover may be seeded in with a blue grass sod in August. The sod must first be disked. In many sections of the Central West blue grass eventually takes the land and

(Continued on page 38)

A one-minute demonstration of Better Farming by the

*FERGUSON SYSTEM

One of MANY advantages

with the FERGUSON SYSTEM the tractor automatically changes its weight to suit the job

One advantage of the Ferguson System that interests every farmer is the way the tractor automatically adjusts its weight to fit the work.

For example, instead of using heavy built-in weight, the Ferguson System provides traction by carrying the plow as well as simply pulling it. Thus, the implement's weight, its downward suck, and the weight of soil on the plow bottoms all transfer weight to the tractor's rear wheels —as indicated by the curved arrows in the above picture.

At the same time, through the Ferguson System of 3-point linkage, a strong, forward-slanting thrust is exerted that holds the front wheels down, too—as shown by the long arrow. Heavy going merely increases these natural forces, adjusting the traction to suit the job, instantly and automatically.

The other pictures show a few more of the many advantages of the Ferguson System that we would like to demonstrate for you. Ten minutes behind the wheel will convince you that the Ferguson System turned the tractor into a Farming Machine. By saving time and strength, it makes possible more farming... and Better Living, too.

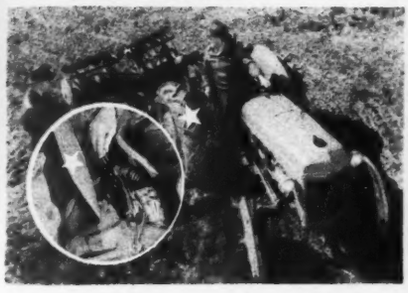
Ask your friendly FERGUSON DEALER a demonstration on your farm

Ford Tractor

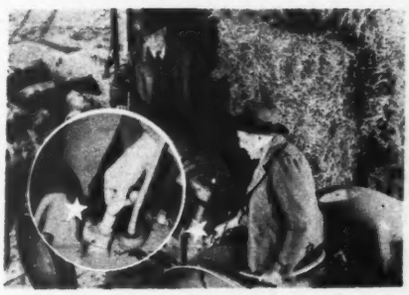
FERGUSON SYSTEM

THREE OTHER IMPORTANT ADVANTAGES

1 Finger tip leveling crank on tractor tilts or levels implements. Replaces heavy levers. With the Ferguson System, you can level or tilt implements in motion.



2 Harrow discs are angled or straightened while moving. With the Ferguson System, hydraulic finger tip control adjusts angle of discs at will, without stopping.



3 Safety starter won't operate with tractor in gear. No danger of a crash start with the Ferguson System. Prevents damage or injury.

*** THE FERGUSON SYSTEM Turned the Tractor into a Farming Machine**

- Uses natural laws instead of heavy inbuilt weight to gain penetration and traction.
- Enables you to lift, lower, set and control implements by hydraulic power instead of muscle power.
- Encourages flexible farming by one-minute implement attaching, one-wrench adjustments, and automatic change of traction to suit the job.
- Provides automatic protection against hidden obstacles without "losing" the implement.

HARRY FERGUSON, INC., DETROIT, MICHIGAN

AN OPEN LETTER ABOUT THIS APPLE

Dear Friend—

Isn't the above apple a pippin? Frankly, wouldn't you be proud to produce beauties like it in your orchard this year? Hundreds of other growers will—with our help, so why not you?

There's no secret to it. You can grow 'em just as fancy—and profitable—if your codling moth spray program includes the combination of Sherwin-Williams products we want to tell you about in this open letter.

[redacted]

Don't take chances on your Arsenate of Lead since it still is the basis of an effective codling moth control program. Use only the best. S-W Arsenate of Lead, for example, tests 98% pure Arsenate of Lead, 2% higher in content than some other Arsenates of Lead.

You get heaviest deposit from S-W Arsenate of Lead because it does not contain a deflocculating agent, which if present, would cut efficiency by reducing deposit on sprayed fruit. And since this deposit contains not less than 30% arsenious oxide and a minimum of water soluble arsenic, maximum moth control results.

[redacted]

But even S-W Arsenate of Lead can't do the best job alone. Add S-W Spralastic to it and you get a *plus* efficiency.

Spralastic—the most efficient spreader and sticker ever developed—actually causes three to four times more Arsenate of Lead to remain on the fruit. It does this by increasing adhesive and spreading properties of the Arsenate of Lead particles, and by eliminating wasteful run-off. The resulting deposit is uniformly heavy, yet easily removed in the standard washing process.

[redacted]

Arsenical injury from this extra heavy deposit? Not a chance in a tankful, if you use another Sherwin-Williams *plus* product, Safe-N-Lead. It actually does what lime fails to do—prevents foliage "burn."

Safe-N-Lead is a prepared, dry zinc compound that neutralizes the water soluble arsenic in Arsenate of Lead, thus preventing foliage injury. It is the only satisfactory safening agent you can buy. Growers everywhere will tell you that the zinc in Safe-N-Lead actually stimulates the growth of rich, healthy blue-green foliage.

[redacted]

Since DDT now has a definite place in the control of codling moth, Sherwin-Williams also offers 50% DDT Powder in wettable form for inclusion in your spray program.

In this S-W product you have assurance that the DDT has the right particle size, that it suspends properly in the spray tank and therefore gives heavy and uniform coating when sprayed on apples.

Write us for the very latest research information on the use of S-W 50% DDT Powder in your 1946 codling moth control program.

Your Sherwin-Williams Spray Advisor

SHERWIN-WILLIAMS SPRAY MATERIALS

INSECTICIDE DIVISION

101 Prospect Ave., N. W. • Cleveland, Ohio

HISTORY OF HORTICULTURE

A. P. S. CONVENTION, 1905

By T. J. TALBERT

Member, Board of Managers

BELIEVING that the members of the Society will be interested in some of the work of the organization in the past, the following, including the picture reproduced, is quoted from the 48th Annual Report of the Horticultural Society of Missouri, 1905:

At the twenty-ninth biennial session of the American Pomological Society, Kansas City, September 19-21, 1905, delegates and visitors were present from Canada to Mexico and from New England to far beyond the Rocky mountains.

After the call to order by Secretary John Craig, C. L. Watrous of Des Moines, Ia., was selected to preside. A gavel made from a limb of one of the pear trees grown by Marshall P. Wilder, father of the Society, and sent by him to the Kansas Horticultural Society, was presented to the organization by W. H. Barnes, secretary of the Kansas organization, for use during the session.

The banquet rooms of the Coates House were beautifully decorated with ferns and palms. More than two hundred delegates and members were present, representing a wide scope of country. Some 1,600 or more plates of fine fruit were exhibited, some from New York, from Alabama, Florida, New Mexico, Utah, Washington and Michigan, with most of the states lying in between helping to make up the fine show. Missouri had apples on the tables in fine condition from the crops of 1903 and 1904, which had been shown at the World's Fair, again at State meeting in Neosho and held till present time, a valuable demonstration in the possibilities of cold storage.

The following officers were elected: President, L. A. Goodman, Kansas City; Vice-President, T. V. Munson, Denison, Texas; Secretary, John Craig, Ithaca, N. Y.; Treasurer, L. R. Taft, Agricultural College, Mich.

The American Pomological Society, which held its convention in Kansas City, Mo., September 19-21, 1905, ended its labors with a delightful trip down into the land of the big red apple, the home of the luscious peach, the country which lies below, alongside and athwart the green-topped Ozarks.

At the close of the last session, Thursday night, September 21, a party of sixty-three took themselves and their suit cases to the Wyandotte street station, boarded two special Pullman cars and set up their Lares and Penates for a week's stay.

They were a jolly crowd, these fruit men, and as soon as they forgot that they were professors in agricultural schools and came down to earth they were the best of their kind.

From eighteen different states they had gathered in Kansas City to learn what others of their kind had done and to tell these others what they had accomplished.

These men were of all sorts and conditions; big and little, tall and short, rotund and lithe, quiet and fun loving, dignified and pranky.

There were men who made themselves felt at every stopping place and others who stood back and drank in all they heard.

There was tall Craig from Ithaca, N. Y., a Canadian, whose lucky star brought him to this country, and set him teaching in Cornell University; there was Hansen of South Dakota, whose great store of learning was disseminated with a quaint trace of his native tongue; there was Dutcher of Warrensburg, Mo., who beat the Dutch at telling fishing stories; there was Macomb of Lawrence, Kan., whose dissertations on books and literature made one feel ashamed of himself, because he had not read bigger and better; Gano of Parkville, the man who made the Gano apple a thing of beauty; Wragg of Des Moines, Ia., who lived up to his name whenever there was a talk on hand; J. C. Whitten, Head Department of Horticulture, University of Missouri, a scholar and a gentleman; Hutt of Washington, D. C., the Beau Brummel of the crowd; Holsinger of Rosedale, Kan., who, if he ever loses out on fruit growing, can take to vaudeville, Beach of Ames, Ia., quiet and thoughtful; Brusse of Amsterdam, Holland, big and smileless; Burton of Mitchell, Ind., whom everyone loved for his gentleness; Elliott of Minneapolis, who got a very bad eye in an accident and never complained; Adams of Kansas City, Mo., the seedman who won't take his cap off to any man on earth when it comes to driving down Arkansas' rocky hills; Garcia of New Mexico, with midnight eyes and quiet voice; Watrous of Des Moines, who does not approve of new women; Kirkpatrick of Texas, who said so many nice things to the women of the party that they all loved him to death; Butterfield of Lee's Summit, a tall, lean and hungry looking Cassius; Evans, pere, of Kansas City, Mo., who is the father of the Olden fruit farm, and Evans, fil, who lives on the crest of the Ozarks at Mountain Grove, Mo., and who can play the pianola to beat the band; Lowmiller of Parkville, whose delicious fruit was to be had for the

(Continued on page 40)

American Pomological Society Meeting at Kansas City, Missouri, September 19-21, 1905.

State NEWS

CALIFORNIA—The Williams Ranch, Goleta, California, near Santa Barbara, originated a novel plan at Christmas, designed to sell a lot of fruit from the ranch. This ranch grows oranges, lemons, grapefruit, persimmons, limes and avocados, which were packed in field hampers, "Christmassy style," and advertised in the newspapers to be delivered to any point in the United States at about $10 per hamper. There was an immediate demand and hundreds of the hampers were sold, going to all parts of the country.

The rancher offered his fruit-pack through many high-type grocery firms in Santa Barbara, and the Harvey Restaurant in the Union Station of Los Angeles. All of the sales people declared the plan a great success and the Williams people plan another campaign next Christmas. This was the first time such an idea was carried out by California packers.

Reports from receivers indicate that the fruit arrived in splendid condition. It was Mr. Williams purpose to send only the fancy grades in his hampers. The plan proved that ranchers, not identified with nationwide distributors, could move fruits in this unique manner with a profit to themselves, especially at the season for Christmas giving.—*C. C. Evans, Santa Barbara.*

ILLINOIS—The Southern Illinois Horticultural Society had their annual meeting January 21st and 22nd with the largest attendance they have ever had. Two hundred fifty people were present at their sessions which were held at the Southern Illinois Normal University, Carbondale, Illinois.

Growers are all optimistic about another good fruit crop with possibly less peaches. Prospects for a fruit crop over the state as a whole look pretty good.—*C. C. Mast, Sec'y, Illinois State Horticultural Society, Quincy.*

IOWA—Present indications point to a good apple crop in 1946. Most apples are full of fruit buds, however, there were some orchards last year where scab had so defoliated the trees that fruit bud formation was retarded.

Two two-day Fruit Schools were held in January at Council Bluffs, the Council Bluffs Grape Growers' Association cooperating with the Farm Bureau and Extension Service, held an excellent series of meetings. A somewhat similar school was held at Burlington which was attended by most of the commercial fruit growers in southeastern Iowa.

If inquiries are any indication, many Iowa fruit growers will try DDT for the control of codling moth this coming season. —*H. E. Nichols, Assistant Extension Horticulturist, Iowa State College, Ames.*

MAINE—The Fifth Agricultural Trades Show was held in Lewiston Armory on January 22, 23, and 24. Program meetings were held by Maine Pomological Society, Maine Vegetable Growers, Maine State Florists Association, and in other branches of agriculture. Fruit and flower exhibits were strictly limited; exhibits of machinery and other equipment and supplies were extensive.

Wilson M. Morse of Waterford was elected President of the Pomological Society, succeeding L. K. Lee. Rockwood N. Berry of Berry Hill Orchard Co., Livermore Falls, was elected Secretary and Donald C. Prince of Turner, Treasurer. In appreciation of the long efficient and devoted services of E. L. White and T. E. Chase as secretary and treasurer, they and their wives were entertained as guests of honor at a noon-day luncheon at Winter House, Auburn.

Dr. J. G. Horsfall of New Haven, Connecticut, addressed the fruit men on the new fungicides and their possibilities in orchards and did a fine job of showing how the scientist proceeds to find and test chemical substances which should be able to kill spores. John Lyman, orchardist of Middlefield, Connecticut, undertook a look into the immediate future of the apple industry. Dr. F. H. Lathrop of Orono discussed new insecticides as to their possibilities in orchard insect control. Mr. Morse led a round table discussion and A. K. Gardner led a panel on planting and caring for a young apple orchard.

Miss Louisa Douvielle, 19, of Gray, was chosen Apple Annie for 1946. The Maine Apple Committee promotes this activity and the judges were E. Carroll Bean, Master of the Maine State Grange; Everett Greaton, executive secretary, Maine Development Commission and A. K. Gardner, Commissioner of Agriculture.

The meetings throughout were marked by a spirit of optimism and the view seemed to prevail that orcharding in Maine is a good business and that some expansion of orchards is in order, provided only that the prospective operator is deeply, intelligently interested and will plant on good soil and location.—*J. H. Waring, Professor of Horticulture, University of Maine, Orono.*

WASHINGTON—The Yakima district horticultural meeting was held in Yakima on January 17 and 18. This proved to be a very interesting meeting. Growers showed showed unusual interest in the papers by Dr. S. C. Vandecaveye, Dr. A. H. Thompson, William J. O'Neill, Dr. L. P. Batjer, Wm. A. Luce and E. J. Newcomer.

Dr. Vandecaveye, in a very simple manner, explained the make up of fruit soils. Special attention was given to depth of soil, its general type, and the fertilizer needs of fruit trees. In this area where the soils are on the alkaline side, there has been a tendency on the part of some growers to believe that sulphur is needed to acidify the soil. Dr. Vandecaveye pointed out that where ammonium sulphate is used in the usual fertilizer program, the sulphur needs are amply taken care of.

Dr. Thompson pointed out that apple thinning chemicals can be used to reduce the cost of thinning. He cautioned growers, however, in using these materials, saying that it is safer to do part of the thinning with chemicals and finish the job by hand than to try to do a complete job with chemicals.

Mr. O'Neill pointed out that DDT has not been satisfactory for controlling codling moth on apples and pears in this region. DDT does control codling moth but its use permits apple woolly aphis and mites to build up.

Wm. A. Luce led a very interesting discussion on the use of zinc sulphate in con-

(Continued on page 34)

LESSONS IN ORCHARD CHEMISTRY

By E. D. WITMAN, Research Associate
Ohio State University Research Foundation

BORDEAUX MIXTURE

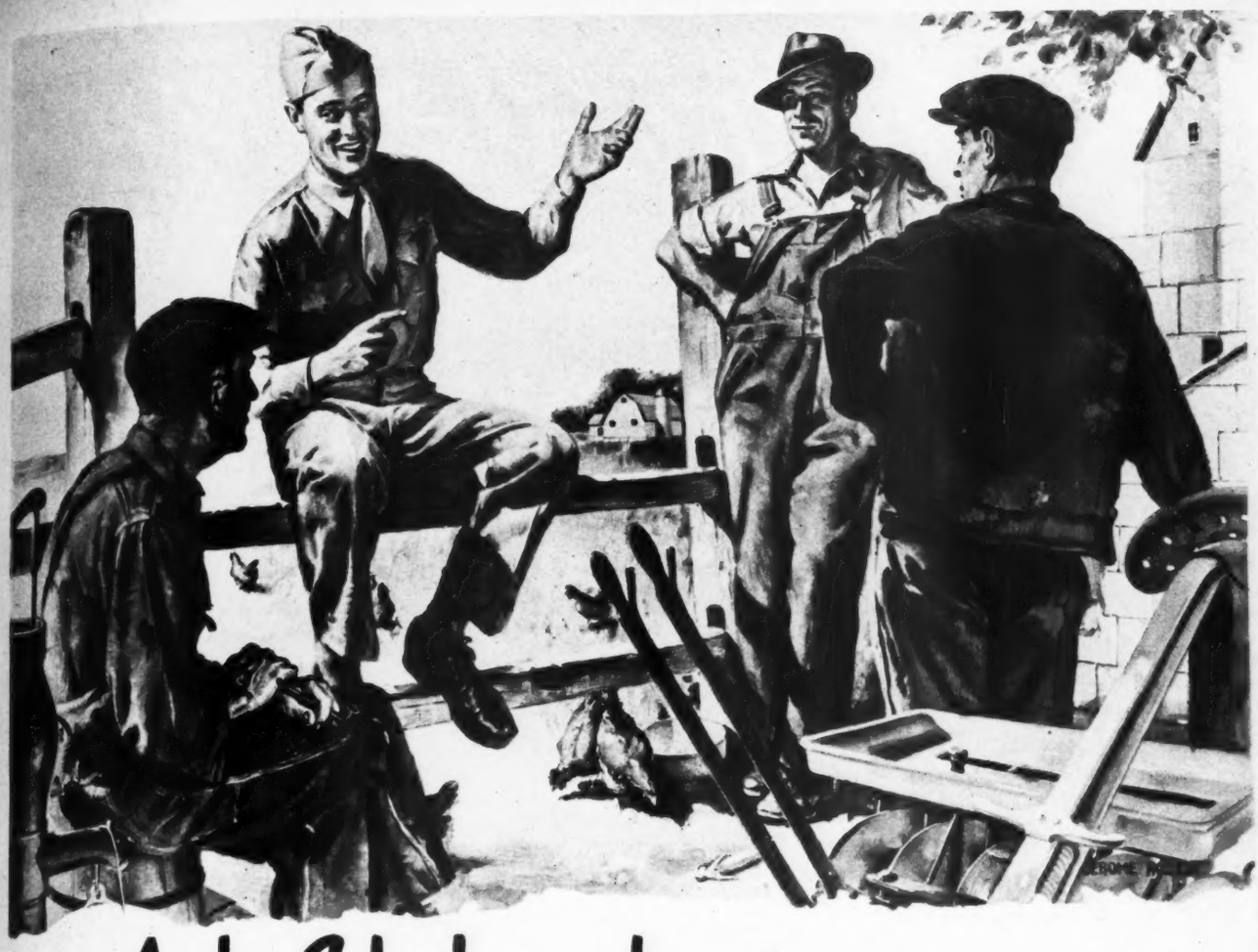
The fungicidal activity of bordeaux mixture was discovered in France it is said as the result of an "accident." Today we can explain its behavior from the standpoint that copper compounds are generally fungicidal. So also are silvery mercury and gold; but copper is the most economical and safest to use.

Copper sulfate itself is a very good fungicide; but it is soluble in water and cannot be used on plants without severe injury. To overcome this disadvantage, lime is added to copper sulfate and the bordeaux-complex is formed, insoluble in water, and very effective as a fungicide. In order to insure that all the "soluble copper" is precipitated, an excess of lime is used. Theoretically a pound of copper sulfate requires only one-third pound of hydrated lime to precipitate all the soluble copper; but generally equal amounts are recommended. The excess lime is quickly changed to limestone (calcium carbonate) under field conditions.

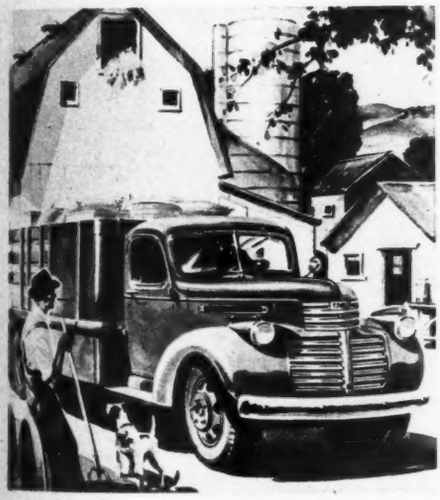
Chemists are not quite certain of the exact nature of the bordeaux-complex. It is best described as a mixture of basic copper sulfates. Undoubtedly, the excess lime further reacts with the basic copper sulfates to form unstable compounds.

The manner in which bordeaux mixture is prepared affects its chemical, physical, fungicidal and insecticidal properties to only a slight extent. Bordeaux, being formed just before use, has very good "sticking" properties. It is also a fairly good "safener" for the arsenical insecticides. It has some adverse effects on plants, chiefly due to the excess lime. Too, most of the incompatibilities of bordeaux are due to the presence of the excess lime.

Ammoniacal coppers may be regarded as a relative of bordeaux mixture. They are made by adding an excess of ammonia to copper sulfate. In this case, however, the excess ammonia *dissolves* the basic copper sulfates, forming a beautiful blue-purple solution.



Ask G.I. Joe about GMC ARMY "WORKHORSE" ENGINES



If you want to know about the power and performance of GMC military trucks just ask G.I. Joe! He's seen GMCs perform dozens of difficult duties with the different branches of the "Service." He's watched GMCs pull heavy loads through some of the toughest going that cargo vehicles were ever asked to tackle.

G.I. Joe has heard Army truck drivers and maintenance men praise the stamina and dependability of GMC's "270" engine. He knows this praise and the phrase "Army's Workhorse" are well deserved because he's seen GMC power proved on every front.

The GMC you own . . . or the one you buy, in any model or chassis type from ½ to 20 tons . . . can be looked to for comparable rugged, dependable performance because its engine is of the same basic design as that which powered "the Army's Workhorse."

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GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

HELP YOURSELF TO BETTER C

Control Insects
Check Disease
Kill Weeds
Stop Pre-Harvest Drop
Improve Quality
Increase Yields

Du Pont P

You'll have more profit and less worry when you have the complete protection of Du Pont Pest Control Products. For the protection of practically every crop, Du Pont offers you a product that's laboratory developed, field tested and prepared for convenient use—packaged for both small growers and large producers.

DEENATE DDT
TRADE MARK
Insecticide

Here is DDT especially prepared for farm use. Effectively control many insect pests on fruits, vegetables, field crops, and livestock, as well as insects in farm buildings. Du Pont "DEENATE" DDT insecticide is prepared in 5 different forms. Your Du Pont dealer will help you pick the one you need for best results—easier application—and long-lasting effect.

2, 4-D WEED KILLER
U. S. PAT. NOS. 2,322,761 AND 2,326,471

This new, "selective" weed killer kills many weeds in pastures, lawns and fields when properly used. Effectively kills annual morning glory, bull thistle, giant and common ragweed, mustards (all species), annual sow thistle, sumac, locust, dandelions, chick weed and many other common farm weeds. Tests also show promise for control of bind weed. See your local agricultural authorities for recommended use.

KRENITE
TRADE MARK
Dinitro Spray

An effective, water-soluble Dinitro spray for orchard crops, small fruits and ornamentals. Both a fungicide and insecticide for a number of diseases and insects; also effective as early ground cover spray for scab control.

FERMATE
TRADE MARK
Fungicide

A non-caustic fungicide, non-russeting on apples and pears. Favored by many growers for use on apples, pears, cherries, cranberries, celery, tomatoes, beans and other crops. Effective against many diseases and safe on a wide range of plants. Use as a spray or dust. Compatible with most insecticides.

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BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

TER CROPS

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ZERLATE
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Fungicide

Outstanding control for early blight of potatoes as well as diseases of tomatoes, celery, beans and other vegetables. Also for control of brown rot on peaches. Combined with "DEENATE" DDT, it makes an unusually effective disease and insect control.

AMMATE
TRADE MARK
Weed Killer

Still the outstanding weed killer for poison ivy, poison oak, choke cherry and many other woody perennials. Also excellent for clearing fence rows and second growth.

PARMONE
TRADE MARK
Fruit Drop Inhibitor

Controls pre-harvest drop. Gives apples and pears time for development of maximum color, quality and size. Cuts spot picking and cull losses. Available for dust, water or oil applications.

OTHER AIDS FOR BETTER FARMING

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*GRASSELLI Lead Arsenate
*NUREXFORM Lead Arsenate
Basic Lead Arsenate
*PARAPONT
Calcium Arsenate
Rotenone
Paris Green

OIL SPRAYS

FUNGICIDES

*SULFORON — Flotation Sulfur Paste
*SULFORON X — Copper Sulfate (monohydrated)
COPPER-A Compound — Copper Sulfate (blue vitriol)
Lime Sulfur — Bordeaux Mixture

OTHER SPRAY MATERIALS

Special Dust Mixtures—Du Pont Spreader-Sticker

PHENOTHIAZINE LIVESTOCK WORM REMOVER

Kills more kinds of worms in more kinds of livestock than any other known drug. Du Pont Phenothiazine is now available in worm remedies of many well-known manufacturers.

AGRICULTURAL SERVICE

Trained Du Pont agricultural servicemen are located throughout the country. For additional information about the use of Du Pont Pest Control Products in your community, see your local Du Pont dealer or write direct to E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Wilmington 98, Delaware.

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Du Pont PEST CONTROL PRODUCTS

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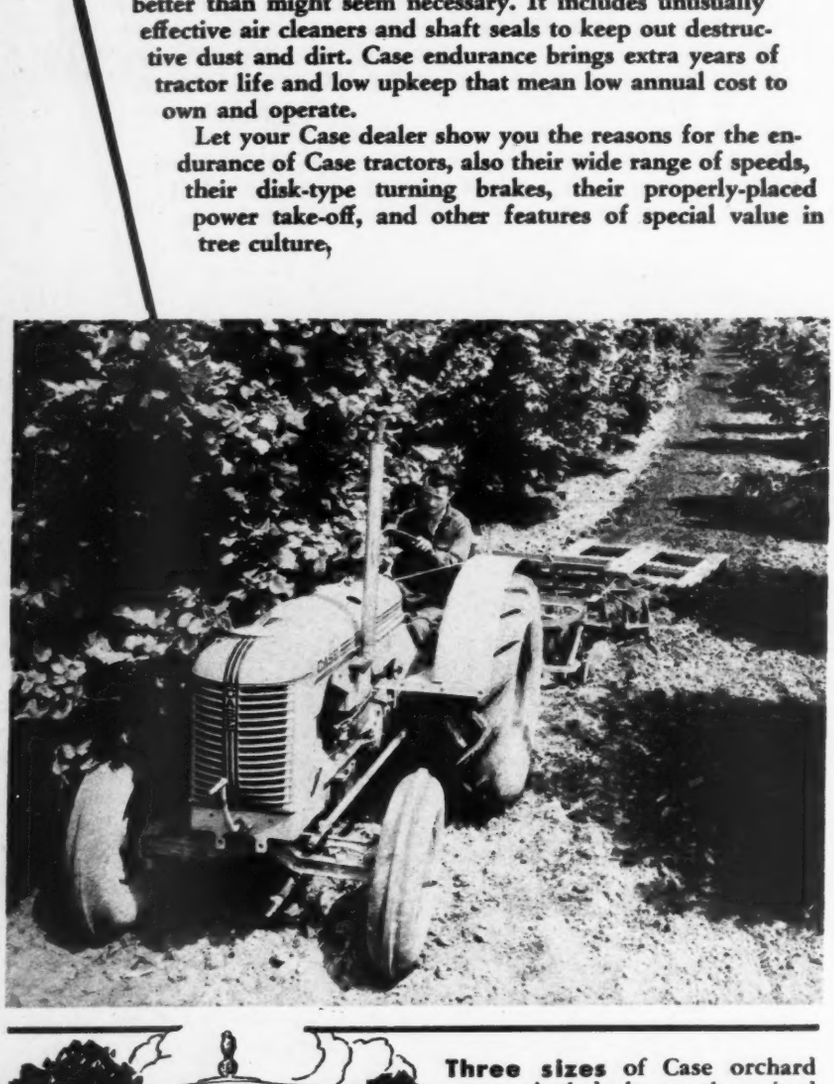
FUNGICIDES
WEED KILLERS
PHENOTHIAZINE
"PARMONE"

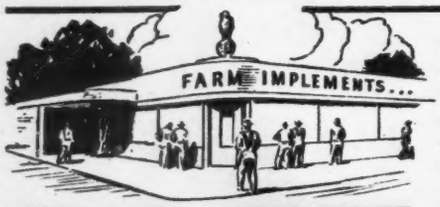
One Thing Stands Out *as the Years Go By*

FIRST experience with a Case tractor reveals its eager power, its steady pull even when throttled to half-speed . . . the comfort of its safety seat that pushes up to be a backstop when the driver stands for a change . . . its features for convenience and easy handling, such as the full-swinging, self-locking drawbar that shortens turns with full load.

Years of use reveal the extra ENDURANCE built into Case tractors. It comes largely by making every part a bit better than might seem necessary. It includes unusually effective air cleaners and shaft seals to keep out destructive dust and dirt. Case endurance brings extra years of tractor life and low upkeep that mean low annual cost to own and operate.

Let your Case dealer show you the reasons for the endurance of Case tractors, also their wide range of speeds, their disk-type turning brakes, their properly-placed power take-off, and other features of special value in tree culture.





CASE

Three sizes of Case orchard tractors include the popular-priced "VAO," the full 2-plow "SO" and the 3-plow "DO." All have Case valve-in-head engines with renewable sleeve cylinders, and four gears forward for everything from creep travel in spraying to safe highway transport. Send for catalog of size you need. J. I. Case Co., Dept. C-13, Racine, Wis.

PROMISING PLUM VARIETIES

(Continued from page 11)

Utility

Utility, a Laxton plum obtained by crossing Peach with Jefferson, is gaining in popularity in England and due to its productiveness and attractiveness it warrants careful watching. Ripens with Oullins about middle of August in central New York. Fruit large, oval; skin thick, tough, purplish red with lilac bloom; flesh greenish yellow, juicy, fine grained, tender, firm, mildly subacid; good; stone free to semi-cling.

Washington

Washington, an old variety probably originated about 1790 by Prince of Long Island from seed of the Green Gage, is still well worthy of being grown for the home or local markets. Fruit ripens about three days after Utility. Tree is large, vigorous and productive; fruit very large for a Gage type, roundish oval, light yellow, occasionally blushed, with a thin bloom; skin thin; flesh greenish yellow, juicy, tender, sweet; good to very good; stone free.

Prinlew

Prinlew, a volunteer seedling, was introduced in 1923 by H. A. Lewis of Russelville Nursery Co., Portland, Oregon. The name "Prinlew" was derived from the combination of two words, Lew from Lewis and "Pryn" the French word for plum. In one communication it was said to have been obtained from a cross between the Italian and Bradshaw plums. Tree is medium in size and vigorous, upright and productive; fruit large, oval, greenish yellow, nearly covered with reddish purple; color somewhat dull; skin medium in thickness and toughness; flesh greenish yellow, juicy, tender, melting, sweet, good to very good; stone semi-cling. May be too soft for shipping but promising for local markets.

Yakima

Yakima, a European variety, originated in the Northwest. Parentage is unknown. It was exhibited at a Fair in 1909 and introduced by the Washington Nursery Company, Toppenish, Wash., in 1922. Tree grows large, upright and tall, rather slow coming into bearing but productive. The fruit is the largest of any of the European varieties. Plums are obovate in shape, purplish in color and have a thick lilac bloom. Skin is thick and tough, while flesh is coarse, medium in juiciness and tenderness, mildly subacid and good; stone is free. This plum is well

worthy of growing for fancy trade.

Stanley

Stanley originated in 1912 at the New York State Agricultural Experiment Station from a cross between Agen and Grand Duke and was introduced by the New York State Fruit Testing Association in 1926 for trial. Few plums have met with approval as rapidly as Stanley. To date excellent recommendations have been received from as far west as Colorado, as far north as Wisconsin and from all the intervening states to the Atlantic. Tree is large, vigorous, upright-spreading, productive and usually an early and annual bearer. Hedrick's prediction in 1928 that "Stanley gives promise of becoming a valuable addition to the plum varieties for New York and the East" has been verified. Fruit usually ripens just before the Italian, except when it over-bears and ripening is delayed. Plums are large, prune-shaped, attractive dark blue or black with a very heavy bloom; flesh greenish yellow, moderately juicy, fine grained, tender, firm, sweet; good; stone free to slightly clinging. Under conditions where the Italian prune has been slow in coming into bearing and abnormally unproductive, the Stanley has yielded heavily. Although self-fruitful, it is recommended that other European varieties be included in the planting.

Hall

Hall, a sister to Albion, was produced in 1908 at the New York State Agricultural Experiment Station by crossing Coe Golden Drop with Grand Duke. In 1923 it was introduced by the New York State Fruit Testing Association. Tree is only medium in size, upright-spreading and productive. Fruit usually ripens soon after the Stanley. Plums are large, elongated-oval, attractive blue; bloom heavy; flesh yellow, juicy, tender but firm, sweet, good; stone free. Tree not as strong a grower as Albion and requires cross-pollination. Size and attractiveness of fruit bring a ready sale.

Italian Prune

Italian Prune, also known as Fellemberg or Fellenberg and York State Prune, holds first place among the plums of the eastern United States and is also one of the leading plums in the western states. Prince as early as 1832, stated the Italian prune "is held in great estimation for its excellent qualities." Tree of medium size, vigorous, spreading, productive under favorable conditions but too often unproductive and slow in coming into bearing. Fruit ripens about middle

(Continued on page 28)

Here's why most Truck Fleets specify Champion Spark Plugs

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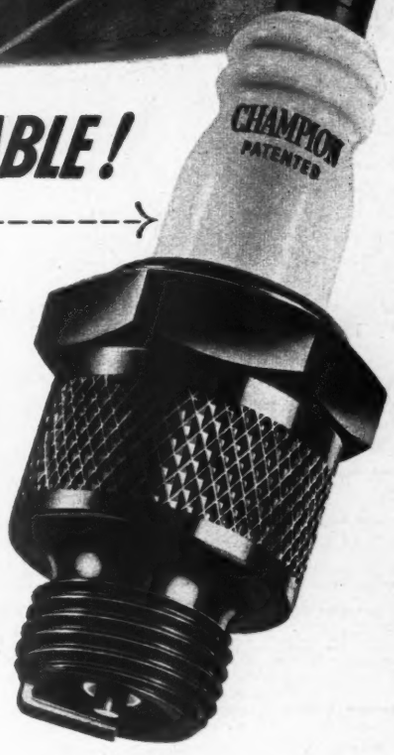
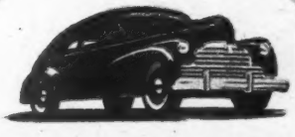


When most of the country's leading truck fleets—to whom spark plugs are a cold matter of cost per ton mile—specify dependable Champions, you have substantial proof that Champions will insure maximum economy and peak performance in every farm engine. Champion Spark Plug Company, Toledo 1, Ohio.



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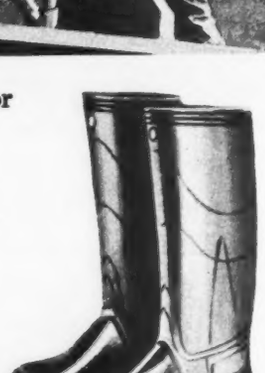
Clothing that spells Spraying Protection

"U.S." SAVOY COAT. Double backed for extra service. Heavy lining, corduroy edged collar, 11 ventilating outlets.
"U.S." SQUAM HAT. Reinforced brim.
"U. S." RUBBER ARCTICS. Scientific-strength compounds at points of stress—buckles firmly anchored. 4 or 5 buckle.
"U. S." RUBBER BOOTS. Leak-tested under water by internal air-pressure—"tire tread" strength in sturdy "CLEATRED" soles—rocker last for walking comfort.
"U. S." WORK RUBBERS.



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PROMISING PLUM VARIETIES

(Continued from page 27)

of September, medium in size, long-oval, bulged on suture side; skin thin, medium tough, purplish black, overspread with thick bloom; flesh greenish yellow to yellow, juicy, firm subacid; very good; stone free. Where it does not produce well Stanley is taking its place.

Reine Claude

Reine Claude, one of the oldest of the European plums and frequently called Green Gage, is still the leading late culinary plum in the eastern states. Tree of medium size and vigor, round-topped and productive; fruit medium in size, roundish-oval, yellowish green, sometimes mottled with red; flesh golden-yellow, juicy, firm, sweet, mild; very good; stone semi-cling.

Albion

Albion, also originated at the New York State Agricultural Experiment Station in 1908 from a cross between Coe Golden Drop and Grand Duke. The cross was made to procure a productive large plum with better quality than Grand Duke. In 1929 this variety was introduced for trial by the New York State Fruit Testing Association as the best of the late ripening plums. Tree large, upright-spreading and productive; fruit very late, large, oval to ovate with slightly pebbled surface, purplish black; flesh golden yellow, firm, coarse juicy, pleasantly flavored; good in quality; stone clinging. Liked in Ontario, Canada, for it has proved to be a good shipping plum.

Damson Plums

There are a number of Damson plums in the trade. Shropshire has been the most commonly planted but the French which produces a larger but less attractive fruit is preferred by many growers. The French tree is claimed by some growers to be a stronger grower than the Shropshire. Although our Shropshire is supposed to have come from England, the Shropshire recently obtained by the Vineland Experiment Station from England is smaller and more necked.

Plums of Superior Quality

Unfortunately comparatively few people have had the opportunity to taste the highest flavored plums and also unfortunately some of the highest quality plums are not being propagated in America. There are very few people who appreciated the fine flavor in plums better than the late E. A. Bunyard of Maidstone, England. In his book, "The Anatomy of Dessert,"

he brings out these distinctions most admirably.

A few of these superb varieties are the Early Transparent Gage which ripens about the same time as Oullins. "At its best this earliest member of its family is first-rate and has the true 'gage' consistency with the richness which this family alone provides." Green Gage of England ripens about two weeks before Reine Claude. Fruit small, round, green with slight red flush or dots; flesh yellowish green, tender and delicious. Golden Transparent Gage ripens about mid September. As Bunyard says, it "has the gracious richness of harvest under its golden coat." The plum orchard will not be complete without a tree of De Montfort, McLaughlin, American Mirabelle, Pearl, and Imperial Epineuse. The Imperial Epineuse when well ripened is not surpassed by any prune. If its fruit was less subject to brown rot and cracking it would or should be extensively planted.

NATIONWIDE FRUITS

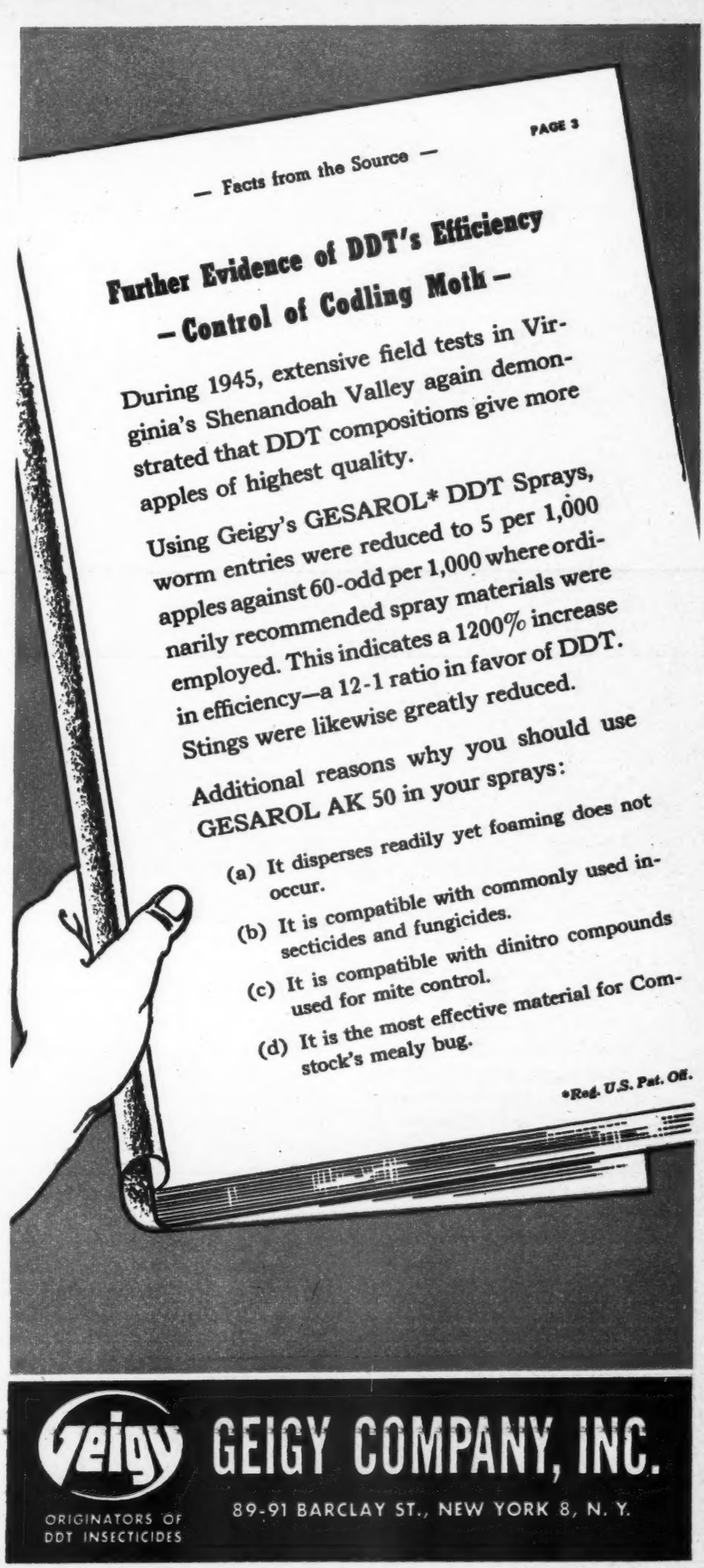
(Continued from page 15)

did not check powdery mildew and leaf spot satisfactorily, hence diseased plantings were removed and production has declined sharply, particularly in the Hudson Valley area.

The Station tests embraced a wide range of fungicides, including such standbys as lime-sulfur and bordeaux mixture and several new copper compounds and organic materials. Spreader-stickers were also tested in various combinations.

A single application of lime-sulfur (2 to 100) with half a pound of Spraysoy A added gave the most efficient control of powdery mildew when made immediately after bloom. The best control of leaf spot was obtained with two applications of bordeaux mixture (3-5-100) with 1 pint of self-emulsifying cottonseed oil. The first application is made when leaf spot is first noticed, usually about June 1st, and the second in July immediately after the fruit is picked. Lime-sulfur did not control leaf spot.

Rust was most readily held in check by removing or burning over all nearby sedge plants. Rust cannot spread from gooseberry to gooseberry plant but must first pass through certain life stages on the sedge, thus burning over sedge plants in late fall or early spring is a most effective method of controlling rust. Rust may also be held in check with three applications of lime-sulfur (2-100), with the first spray applied at the green-tip stage of the gooseberry, the second spray about 10 days later, and the third treatment just before bloom.


PAGE 3
— Facts from the Source —
Further Evidence of DDT's Efficiency
— Control of Codling Moth —
During 1945, extensive field tests in Virginia's Shenandoah Valley again demonstrated that DDT compositions give more apples of highest quality.
Using Geigy's GESAROL* DDT Sprays, worm entries were reduced to 5 per 1,000 apples against 60-odd per 1,000 where ordinarily recommended spray materials were employed. This indicates a 1200% increase in efficiency—a 12-1 ratio in favor of DDT. Stings were likewise greatly reduced.
Additional reasons why you should use GESAROL AK 50 in your sprays:
(a) It disperses readily yet foaming does not occur.
(b) It is compatible with commonly used insecticides and fungicides.
(c) It is compatible with dinitro compounds used for mite control.
(d) It is the most effective material for Comstock's mealy bug.
*Reg. U.S. Pat. Off.
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GEIGY COMPANY, INC.
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"The railroad's a part of my business"

"WHAT I MEAN is this: The railroad that serves this section connects my farm with every market — every town and city — in the whole United States. And if it wasn't for the railroads, I'd have nothing much more than a local market for my crops. That's why I say the railroad is a working part of my business."

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Beside hauling his products and delivering his supplies, the railroads work for the farmer in other ways, too. They pay local taxes to every community they serve — and that tax money goes to work to help provide schools, highways, and public health protection. In addition, the railroads buy much of their supplies locally — and employ many local people.

Add it all up and you see why thoughtful American citizens want to be sure that the railroads are given a fair chance to compete on an even footing with other forms of transportation.

AMERICAN RAILROADS

IN PARTNERSHIP WITH ALL AMERICA

PLUM PRODUCTION IN PACIFIC STATES

(Continued from page 12)

ing acreage. Due to high prices received for early fruits, the importance of a plum variety in California is determined as much by its earliness as by any other factor. This is not true in the Pacific Northwest states where little or no premium exists for earliness as early varieties there compete with California mid-season varieties.

The Italian prune (Fellenberg) is the only important variety grown in the Pacific Northwest not only for fresh shipment, but also for drying and canning. It reaches high quality and offers strong competition to late California varieties shipped fresh and is the only important fresh plum canned in the West.

In the California prune industry the French prune (Prune d'Agen) variety accounts for over 80% of the prune acreage of the state. Other varieties of importance are Imperial, Sugar, and Robe de Sergeant.

Pollination

Most of the Oriental and some of the European plum varieties are partially or completely self sterile making cross pollination necessary or desirable if satisfactory yields are to be obtained. This is accomplished by mixed plantings of inter-fruitful varieties and the use of bees for distributing pollen.

Cultural Practices

The dry season in the Pacific states extends from May through September. Irrigation is therefore an essential to good commercial production of plums in all except the coastal regions of Oregon and Washington, and even here it may be desirable. The frequency of irrigation varies with the soil and climate, the important point being to always have moisture in the soil that is available for the tree roots.

Plum trees in the Pacific states respond to applications of nitrogen fertilizer. There is no general response to other fertilizer elements except to certain minor elements such as zinc.

Proper pruning is an extremely important operation as it will do much to maintain tree vigor and aid in producing large sized fruit. Plums of the Oriental varieties are vigorous growers and because of their fruiting habits require heavier pruning than those of the European varieties. The expensive task of hand thinning of the crop which is usually required with Oriental varieties may be reduced by proper pruning.

The importance of disease and pest control varies from year to year and between districts. Brown rot is the

most important disease for which copper spray compounds are applied. Red spiders are often serious pests in the European varieties and if not controlled may cause defoliation. Peach twig borer in both plum species, and aphis in the European varieties, are the only two insect pests of general importance.

Marketing

During the period of low prices in the early and middle '30's very little fertilizer was applied and orchard care was generally poor. However, when prices began to rise orchards were again properly cared for and production per acre has been increased sharply. This increase has been somewhat more than enough to offset the reduction in acreage during the past 20 years.

Most Pacific Coast plums and prunes shipped in the fresh state are marketed in the states east of the Mississippi River. This situation makes it necessary to use the best methods of handling in order to assure the fruit arriving on eastern markets in good condition.

All of the Oriental varieties are picked mature but not ripe. They are carefully graded, packed in 4-basket crates, and placed immediately under refrigeration in order to lower the flesh temperature and slow up the ripening processes. The crates of fruit are usually pre-cooled before shipment in refrigerated railroad cars. Ripening processes continue to take place during transit so that the fruits are of suitable ripeness when they reach the market. During the war years when it was impossible to maintain normal rail schedules, losses due to fruit arriving too ripe were not infrequent.

European plum varieties are picked somewhat riper than the Oriental varieties as their flesh is generally more firm and holds up better during shipment. This is one reason why the Italian prune from the Pacific Northwest states has such high quality even after 10 days in transit across the continent packed with less protection in ½ bushel baskets or peach boxes.

Equipped Refrigerator Cars

Considerable improvement in the shipment of plums is anticipated with the increased availability of refrigerator cars equipped with fans for forced air movement. These cars will keep the temperature of the fruit in the top crates within 1 to 3 degrees of that in the lower crates. This will allow fruit to be harvested in a riper condition than formerly and will in turn improve its final eating quality.

Prices received during the war years are no basis on which to judge the

(Continued on page 36)

..."HAVE PUT ONLY NEW FILTERS ON D2'S ENGINE ...IN 4500 HOURS!"

GEO. DINKEL & SONS, SPARTA, MICHIGAN

THE "Caterpillar" Diesel D2 Tractor shown here does the heavy orchard and field work on 320 acres — for Geo. Dinkel & Sons, Sparta, Mich.

By mid-December, 1945, this D2's hour meter had registered 4500 hours of work. About their experience, to date, with this power, the Dinkels report:

"As yet, we have not so much as put new rings in our Diesel's motor. Only new filters so far.

"The D2 is always able to go through and get our jobs done.

"In wet years, the D2 can pull our sprayer through deep mud and get the spraying done on time.

"We picked our corn this fall (under wet conditions) which would have been impossible with any other form of power."

Positive, weather-beating traction is "standard equipment" of "Caterpillar" Diesel Tractors. So is fuel economy to whack 50%, or more, from conventional fuel bills. So is in-built long life—as evidenced by the many Diesels of this make — that have done what equals 25, or even 30 or more years of heavy orchard work.

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From Tree to Trade

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Es-Min-El is now sold in convenient 5 lb. and 100 lb. bags. Write us today for the name of your dealer.

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AN UNFAILING COMBINATION
to assure Bumper Fruit Crops:

1. Niagara Direct Drive Fruit Duster . . . equipped with self-starter engine and lights for night dusting. Other combinations available.

2. Niagara Kolodusts . . . rain penetrating and adhesive for protection against sulphur susceptible fungi.

WHEN IT'S BUY Niagara YOU BUY PROTECTION

Niagara Fruit Duster Kolodust and Dusting in the Rain

● These three factors all combine to make a modern, effective and labor-saving method of protecting against early spring insect and disease infection.

Niagara Fruit Dusters have many inherent features that are not to be found in other dusting machines. Accurately controlled distribution of dust is one of these features. They are strong and durable, yet simple in design. Niagara Fruit Dusters are built to operate under extremely severe conditions and to give many trouble-free years of economical service.

Kolodust is a non-caustic, highly toxic, Bentonite-Sulphur fungicide. Old and tried, it is always at the top in fungicidal value. • Niagara dealers will be glad to give you complete details about Niagara Dusters, insecticides and fungicides.

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SUBSIDIARY OF FOOD MACHINERY CORPORATION
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Richmond, Cal. ● Greenville, Miss. ● Jacksonville, Fla. ● Harlingen, Tex.
Canadian Associate: Niagara Brand Spray Co., Ltd., Burlington, Ontario

SUCCESS WITH PLUMS

(Continued from page 13)

been a commercial variety for many years.

Among other varieties of plums in the Burkholder orchard are Reine Claude, Bradshaw, Yakima and Pride of Michigan which have produced satisfactorily for the local market. Altogether there are some thirty varieties on the 19 acres set to plums. A five-acre planting has just been made to Stanley and Grand Duke varieties. The Lombard variety is not being planted any longer because of superior varieties of plums now on the market.

Plum Culture

To observe the culture of plums we shall journey only a short distance to Mr. Burkholder's neighbor, Mr. Ben Davis, another diversified fruit grower. His choice of varieties is almost the same as that of Mr. Burkholder. Stanley leads in his 30-acre plum planting with Grand Duke taking second place as a variety grown for processing. Aside from those varieties grown by Mr. Burkholder, Mr. Davis has grown the Albion. It has for him proven inferior to Stanley in that it tends to biennial bearing and seems more subject to scale infection. The Hall variety likewise has not equalled Stanley in quality or production.

The Davis plum orchard is grown under cultivation and for the most part without a cover crop. This method has given the most satisfactory results.

Utilizes All Areas

The trees are set 20 by 25 feet when planted alone. However, Mr. Davis has used plums as filler trees in his later apple plantings with a great deal of success, much more so than with peaches. He has also planted low and poorly drained areas of the apple orchard to plums. This provides for profitable utilization of all areas of the farm.

The Davis plum orchard receives a 3 per cent dormant oil spray every year to keep scale insects under control. Ordinarily one shuck-fall spray is applied to plums and other stone fruits, but Mr. Davis is satisfied only with two such sprays, and attributes his success in curculio control to this practice. The first shuck-fall application of lead arsenate, 3 pounds to 100 gal. water, is made just before the shucks actually fall from the expanding fruits. The sprayer is then used to apply the shuck-fall spray to the 30 acres of sour cherries, which shed their shucks slightly before the plums. Then by the time the cherries are sprayed, the shucks have dropped

sufficiently from the plums to permit the normal shuck-fall application. By following this system of curculio control, Mr. Davis has never had any problem in controlling this enemy of the plum grower.

Checks Brown Rot

Besides the other regular spray applications for curculio and brown rot control as recommended by the Ohio Spray Service, the Davis plum orchard receives two sulfur dusts just before harvest. This is an assurance in holding brown rot in check during and after the harvest period.

The plum trees are pruned more or less to a modified-leader system with considerable detailed pruning on bearing trees to keep them open and highly productive. The trees are also kept low enough to be picked from a ten foot step ladder. Pruning is an annual practice and one which Mr. Davis takes pride in doing himself.

Marketing Plums

All the Grand Duke plums go to the processing plant while most of the Stanley, Imperial Epineuse and other varieties are sold on the fresh market. For this purpose, they are ring-packed in round half bushel baskets. The majority are purchased by large buyers who come to the farm, a small quantity being sold direct to consumers at the farm. The demand for high-quality plums has been growing during the past few years and it seems that it will continue.

Sells Quality Fruit

A word should be said concerning the marketing of plums from the Burkholder plantings. For almost a half century, Mr. Burkholder has been growing and selling plums. His practice from the very beginning was to give the buyer only the very best and if there was anything slightly wrong with the plums to tell the buyer so. This rigid adherence to the rule of selling quality fruit has won for Mr. Burkholder a wide reputation. Now, people come for miles around at plum harvest to buy his plums. Such a phenomenal market reputation as this obviously presents Mr. Burkholder with but one problem, to be able to supply enough plums for the people when they flock to his farm. He markets the entire crop in this manner, not only of plums but of his other fruits.

Plum growing in the Eastern states is not a difficult thing to do. Obviously you must not conclude from this fact that you ought to plant heavily to plums. The market

(Continued on page 37)

● Now you can get the Dobbins Eveready Power Sprayer, for *dependable*, economical application of all spray solutions used to control insect and fungus infestation. It's *lightweight* and *mobile*... especially designed for easy handling and one-man operation. Available with either pneumatic or steel-tired wheels, as desired. Equipped with Briggs & Stratton engine. See this labor-saving, *dependable* Dobbins Power Sprayer at your friendly Dobbins dealers, or send for *free* Power Sprayer Catalog.

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'Aero' Cyanamid guarantees 20.6% nitrogen — that's what you pay for. It contains 70% lime—and the lime costs you nothing. 'Aero' Cyanamid not only feeds your crops; it helps sweeten your soil and keep it sweet. Write for valuable free folder "Profits Grow From Humus." *American Cyanamid Co., Fertilizer Division, 30 Rockefeller Plaza, New York 20, N. Y.*

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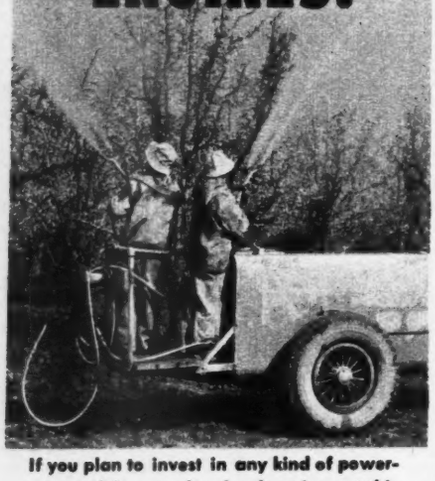
You Can Depend on ORCHARD EQUIPMENT Powered by WISCONSIN HEAVY-DUTY Air-Cooled ENGINES!



If you plan to invest in any kind of power-operated farm and orchard equipment this year . . . be sure to give careful consideration to the ENGINE.

Most leading manufacturers of dusters and sprayers . . . as well as leading manufacturers of a great diversity of general farm equipment . . . specify WISCONSIN HEAVY-DUTY AIR-COOLED ENGINES as *standard power equipment*. This is the best guarantee you can have of steady-going, heavy-duty dependability in any weather, at any season, on any power job with the engine's rated horse-power.

Every Wisconsin Engine is equipped with Timken tapered roller bearings at BOTH ends of the crankshaft as maximum protection against end-thrust and bearing failure. Every Wisconsin Engine has mirror-honed cylinders . . . and super-finished crank-pins. All Wisconsin Air-Cooled Engines are equipped with a weather-sealed, rotary type outside magneto. All Wisconsin Engines start quickly and easily, and will deliver their full power-load under continuous operation.

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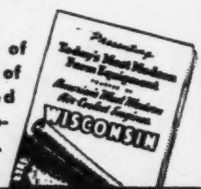

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STATE NEWS

(Continued from page 22)

trolling rosette. He pointed out that seriously affected orchards can be brought out of this condition by heavy dormant applications of zinc sulphate. As much as 25 to 40 pounds of zinc sulphate may be used. Mr. Luce pointed out also that when zinc sulphate is applied by airplane it should be placed upon the growing tips in liquid form. If the material crystallizes, it is not likely to be absorbed into the plant system sufficiently.

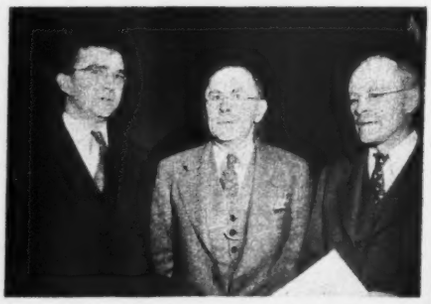
There has been a great deal of interest in growing grapes in this area. This is not surprising to us inasmuch as we frequently produce as much as 8 to 10 and more tons of the Concord variety. This is considerably more than is produced in eastern areas. In January in one county we had a series of six grape pruning demonstrations in two days. The total attendance for these two days was 335. During these demonstrations a great deal of attention was given to training young plants. We didn't overlook pruning mature vines or general vineyard management. We have been carrying on a training and pruning program for several years and we feel that growers are making good progress in training and pruning their vines. There is still great need for continuing this work with the expanding program before us.

Tree fruit growers have been making excellent progress in pruning. I should say that in the lower areas half or more of the pruning is done. As a rule, orchardists are pruning moderately heavy. Only rarely are the trees receiving radical treatment.

There has been a great deal of interest in applying zinc sulphate to fruit trees in central Washington this year. Thousands of acres have been, or are being, treated, many of them by airplane.

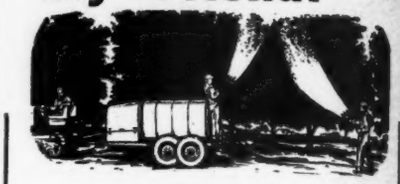
A few growers in the State of Washington are using boron. In a few areas boron has been found to be deficient, as indicated by drought spot and flattened apples. In these areas it has been found experimentally that this trouble can be corrected by applying about 8 ounces of boron per tree sometime in late winter. This treatment usually lasts for three or four years. Because of the unusual sensitivity most plants have to boron, there is danger of applying too much boron in the arid region of central Washington. It has been found that six parts per million is enough and above 26 parts per million causes injury. We urge growers, therefore, to avoid building up enough boron in the soil to injure the trees.—*John C. Snyder, Extension Horticulturist, State College of Washington, Pullman.*

(Continued on page 35)



Fruit growers from three states took part in the program of the annual meeting of the Maryland State Horticultural Society. Left to right they are: Stanley Fulton, Hancock, Maryland; Harvey B. Raffensperger, Arendtsville, Pennsylvania; and Henry W. Miller, Jr., Paw Paw, West Virginia. They discussed their experiences with DDT.

"Spraying was a job I really HATED— until I bought my 'Friend!'"



"Now it is another story. It is actually a pleasure to spray with the 'Friend', and as a result we spray oftener and get larger crops, and cleaner fruit. I have no axe to grind—I'm just a grower who appreciates what you have done to make life better in the orchard."—(West Coast grower; name on request)

Here's why THOUSANDS of growers have written letters as enthusiastic:

The "Friend" has the simplest pump built for high-pressure spraying—with only 1/2 to 1/3 as many moving parts.

Complete Lubrication of all moving parts, including the plungers.

No Leaky Packing; a slight turn on the adjustment screw stops a leak at once. Not necessary to disassemble the pump and change packing.

"Instant-Clean" Valves, on threadless seats; they come right out for cleaning.

Have you ever used a "Friend"? It's the sprayer for Most Satisfaction and Least Trouble. Built in a wide variety of chassis styles; complete range of sizes; pressures up to 1,000 lbs.

FRIEND MFG. CO.
GASPORT, N.Y.
Sprayers - Dusters
Fruit Sizers & Cleaners

Easiest to Maintain in Working Order--
Fewest Moving Parts
"FRIEND"

STATE NEWS

(Continued from page 34)

NEBRASKA—There is a keen interest among our apple growers in the use of DDT for the control of the codling moth. Dr. Lee Jenkins of the Entomology Department at the University of Missouri favored the Horticultural Society at its meeting on February 5th with a discussion of this matter. In spite of the "go slow" signs by most Entomologists all over the country, I am sure that commercial growers will be using DDT in large quantities this year.

Thus far the conditions have been very favorable for over wintering of the more tender fruits such as raspberries and peaches.

The high prices of nursery stock are holding back the replacement of orchards in the Missouri Valley.—*E. H. Hoppert, Extension Horticulturist, University of Nebraska, Lincoln.*

MONTANA—At the annual stockholders' meeting of the Flathead Lake Cherry Growers' Association, O. A. Moen was re-elected to the Board of Directors, and George Gilpin was chosen to succeed W. M. Wayman, former Director and Secretary, who has retired after many years of service to the organization.

Personnel of the Board is as follows: B. J. Krogstad, President; C. C. Fansler, Vice-President; George Gilpin, Secretary. O. A. Moen and H. E. Robbin complete the Directorate. All are of Bigfork, Montana. N. M. Boyd of Bigfork has been retained as Sales Manager and Oliver Engebretsen of Kalispell was re-elected Treasurer.

Membership in the Association has increased to 106 stockholders holding 228 shares of stock. With the coming into bearing of more new orchards, the organization is expected to show a steady growth each year.

Adverse weather conditions during the pollination period tended to reduce the quantity of the 1945 sweet cherry crop, but the quality of the fruit was excellent and most of the pack brought ceiling prices.—*Mildred Kelso, Bigfork, Montana.*

NEW JERSEY—Lester Collins of Moorestown, commercial fruit grower, recently received an award which was presented by Secretary W. H. Allen in the name of the N. J. State Board of Agriculture.

Mr. Collins, who operates several hundred acres of orchards and blueberries, was honored because of his leadership in the revival of the peach industry in New Jersey.

Seated left to right at the banquet table of the 79th annual meeting of the Ohio State Horticultural Society are Truman Nold, Executive Secretary of the National Apple Institute, and Porter Taylor. Truman Nold, recently discharged from the Army, spoke at the following afternoon session of the Society on "The Customer Is Still the Boss".

New markets

For Fruits and Nuts

As Ice Cream production and consumption increase — so does the demand for Fruits and Nuts used in its production.

That's why the EXPANSION program of the Ice Cream Industry with its goal of ONE BILLION GALLONS annually by 1955 is of vital importance to YOU.

America's growing Ice Cream appetites create heavier demands for Ice Cream. Expanded Ice Cream sales mean a *greater need* for more Fruits and Nuts.

The Fruit and Nut Growers can look forward to a steadily increasing market these coming years. The Ice Cream Industry's greater demands for Fruits and Nuts will absorb orchard and nut growers' products on a scale unprecedented in Fruit and Nut Growing history.

INTERNATIONAL ASSOCIATION OF ICE CREAM MANUFACTURERS

ICE CREAM is a nutritious food

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UNITED'S B. B. (BLOCK BAKED) CORKBOARD INSULATION
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Assures maximum insulation efficiency at minimum cost. Moisture-resistant, compact, light weight, sanitary, structurally strong, flexible.

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● Use an E-Z-C shield to *protect yourself* and to get better *crop protection*—you simply tear off a strip of transparent ribbon for continuous CLEAR VISION. Low prewar price! *Send $3 for kit, postpaid.*

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From all over, growers report that they get all around better fruit when Vigoro's yield-increasing and quality-producing food elements go to work in their orchards.

Because of Vigoro's proved record in orchards all over the country, we believe Vigoro can help increase the yields and improve the quality of your fruit.

A letter or card will bring you some important facts well worth considering.

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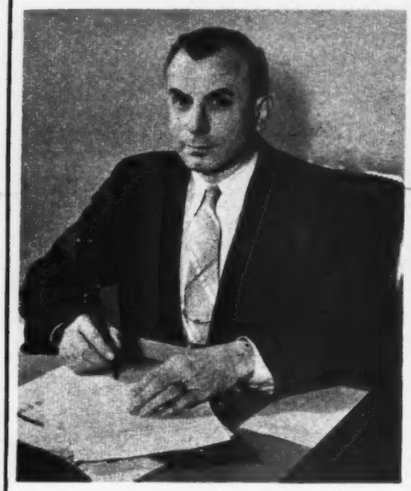
C. W. KITCHEN RESIGNS



C. W. KITCHEN

THE resignation of C. W. Kitchen as assistant administrator of the Production and Marketing Administration took effect on February 21.

After 34 years with the Department of Agriculture, Mr. Kitchen left government service to become executive vice president of the United Fresh Fruit and Vegetable Association, with headquarters in Washington.

Commenting on Mr. Kitchen's resignation, Secretary of Agriculture Clinton P. Anderson said: "The Department of Agriculture is losing a fine, capable public official. During his more than 30 years of service, C. W. Kitchen has contributed perhaps more than any other single individual to basic improvements in the distribution and marketing of farm products in this country. His record is outstanding, both as a technical authority and as an administrator. We in the Department are very sorry indeed to see Mr. Kitchen go, but we are glad that his new position provides a marvelously fine opportunity for continued service and leadership for agriculture."

(U.S.D.A. Photo by Madeleine Osborne)

PLUM PRODUCTION IN PACIFIC STATES

(Continued from page 31)

future of an industry. However, it can be said that the present acreage in the Pacific states is largely in suitable locations and made up of the more desirable varieties. General orchard condition is excellent as indicated by present high yields which in California averaged over 3 tons per acre for the past 5 years, in comparison to about 2 tons per acre from 1924-1935.

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TRADE MARK REG. U.S. PAT. OFF.
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NEW, QUICK WAY TO MAKE BORDEAUX
Superfine crystals are about the size of coarse table salt. Pour them into a container and play the hose on them. They dissolve before the container is filled! *It's the easy and efficient way to make Bordeaux!*

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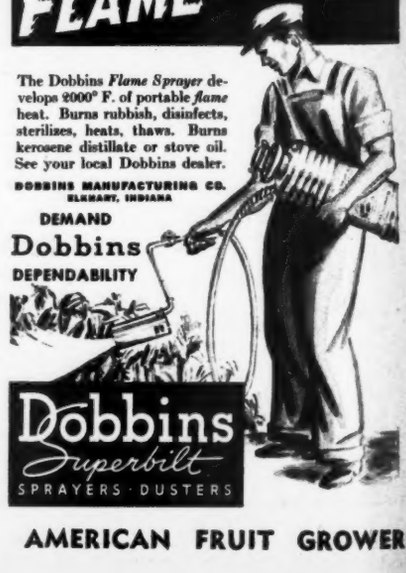

The Dobbins *Flame Sprayer* develops 2000° F. of portable *flame* heat. Burns rubbish, disinfects, sterilizes, heats, thaws. Burns kerosene distillate or stove oil. See your local Dobbins dealer.
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NUT GROWER NEWS

NUT TREE VARIETIES IN IOWA

In the report of the Northern Nut Growers' Association for 1944, D. C. Snyder of Center Point, Iowa, reported on the performance of various nut tree varieties in 1944. Owing to the cold wet spring, conditions were unfavorable for pollination and crops of insect-pollinated fruit trees and some nut trees were very light.

Thomas black walnuts in protected places bore some nuts, while the original tree of Krause produced a good crop of well-filled nuts.

The Hagen hickory has been the most rapid growing variety under test, often making 2 or 3 feet of growth in a season. The nuts crack well and are of the highest quality. The variety is new and its productivity is not fully determined. Billau also produced a full crop on young trees. Wilcox is another variety of considerable promise. The nuts are of high quality and the tree bears young and well for a tree that has been cut heavily for propagating wood.

Pecans do not usually mature in Iowa although the trees bloom heavily and start a crop of nuts. The Major variety, however, did mature its nuts.

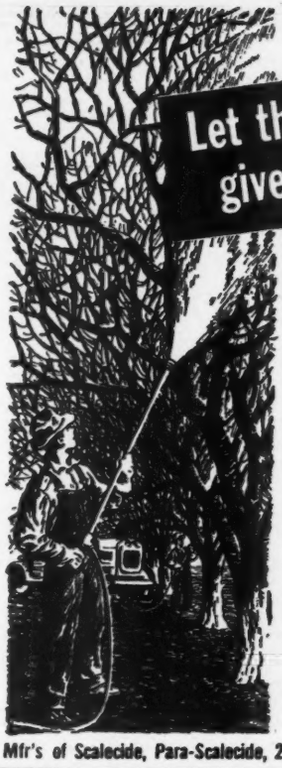
Chinese chestnuts cropped well in spite of the weather and produced the best crop of all the nut trees. Under Iowa conditions they vary greatly in hardiness, some strains killing back frequently and are of little value for nut production.

Weevils are serious on shagback hickories as well as on hazels and filberts and in some localities destroy practically all the nuts.—GEORGE L. SLATE, Northern Nut Growers' Assoc., Geneva, N.Y.

SUCCESS WITH PLUMS

(Continued from page 33)

demand for plums as fresh fruit is rather limited but can be expanded somewhat if done gradually. It is good wisdom to seek the advice of successful growers before going into the venture on your own. There may be hazards in growing plums in the East which have been overlooked here. The purpose of this article was to present a few "good" ideas about plum growing direct from those who have successfully grown this delicate fruit.



Let the *complete* dormant spray give your trees a healthy start

SCALECIDE—the *complete* dormant spray—is the safest and most effective means of getting rid of overwintering insects, invigorating your trees, and giving them a good healthy start for Spring growth.

Scalecide kills scale, red mite, aphis (delayed dormant), bud moth, case bearer—pear psylla, overwintering codling moth and many other pests. Scalecide also has an invigorating effect on tree growth that is unequalled by any other spray. Apply just before the foliage starts in the Spring. Simple, safe, easy to use. One gallon makes 16 gallons of spray.

Give your fruit trees, shade trees, shrubs and vines the protection that Scalecide alone can give. For sale by dealers everywhere.

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Mfr's of Scalecide, Para-Scalecide, 25% DDT (Liquid), 50% DDT (dry-wettable), D-X Spray, Surfispray

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Versatile Planet Jr. Garden Tractors and quickly interchangeable attachments for Plowing, Harrowing, Seeding, Fertilizing, Cultivating, Mowing, Hauling, help you do a better job in less time, in the garden or on the farm.

The demand is heavy, so that not everyone who wants one can get it now. Please be patient with your dealer, he is doing his best. Ask him for the Planet Jr. Tractor Catalog, or write us.

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2000°F Flame

For burning green weeds, brush, sprouts, also for light blacksmithing, thawing, disinfecting.
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Redwood City, Calif. or Gettysburg, Pa.

Effects of Fertilizers on Yield of Mulch within the Orchard (After Ballou)

Annual Fertilizer Treatment To an Acre	*Yield (lbs.) Air Dry Hay*	*Type of Growth Predominating*
Superphosphate 350 lbs.	2,716	Red Clover
Superphosphate 350 lbs., muriate of potash, 175 lbs.	2,884	Red Clover
Superphosphate 350 lbs., muriate of potash, 175 lbs., nitrate of soda, 350 lbs.	3,458	Timothy, red top, blue grass, orchard grass
Unfertilized	840	Poverty grass, weeds, briars

PRODUCTION OF MULCH MATERIAL

(Continued from page 18)

legumes in the mixture tend to disappear.

Some special types of mulch that have limited use are seaweed, peat moss, and peat.

Where to Secure Mulch

There are three common sources of mulch material: (1) It may be grown within the orchard; or (2) produced elsewhere for this purpose and hauled into the orchard; and (3) it may be purchased from an outside source.

One of the striking results secured by the Ohio Experiment Station in its early work in Southwestern Ohio was the effect of fertilizers on the increased growth of grass in the orchard, which provided a large supply of mulch material. The figures in the table above left show the results obtained in one orchard.

It was found that when superphosphate was used alone or in combination with potassium, a striking increase in growth of clovers resulted without any seeding. When nitrogen was used alone or in combination, the clovers were crowded out by

BORON in AGRICULTURE

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DOWN ON THE FARM by L. Ch. Ley

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BECAUSE THEM COWS WOULD FEEL SAFER IF YOUD
DRIVE THAT TRUCK ON B.F. GOODRICH TIRES

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timothy, blue grass, red top, and in some cases orchard grass, which took possession of the land.

These results are not obtained on all soils or under all climatic conditions. Neither phosphorus nor potassium may give measurable results on the ground cover with some soils but nitrogen usually results in a marked increase in the grass growth which can be used for mulch. The following results were obtained in one year on a rather infertile soil in central Ohio and are not exceptional.

Yield of Grasses from Nitrogen Fertilization in an Orchard Ohio, 1937

Plot	Treatment over Orchard	Yield of Dry Hay per Acre (lbs.)	Increase per Acre (lbs.)
1	Untreated	1,573	.....
2	200 lbs. Cyanamid	3,933	2,360
3	same as Plot 2	4,689	3,116
4	same as Plot 2	4,235	2,662
5	same as Plot 2	4,311	2,738
6	400 lbs. Cyanamid	5,143	3,570

If part or all of the material is to be produced elsewhere than between the tree rows. It becomes an agronomic question as to what can be grown best and cheapest. It may require an acre of land or more to produce enough mulch for an acre of mature trees. Such crops as Siberian or German millet sown about June 1 and cut September 1, followed by rye and cut in the spring, should give about 4 to 5 tons of fresh material per acre on fertile land that is fertilized. Sudan grass and soybeans make a satisfactory combination in some regions and may yield 2½ tons per acre. Timothy topdressed with about 300 pounds of sulphate of ammonia or Cyanamid may yield 1½ to 2 tons per acre. Other crops or combinations may be used as dictated by local conditions.

NEW BULLETINS

"Conserving Soil and Moisture in Orchards and Vineyards" (U.S.D.A. Farmers' Bulletin No. 1970) by John T. Bregger and Grover F. Brown, Soil Conservation Service.—This bulletin outlines practices by which fruit growers can take full advantage of site resources and prolong the productivity of their orchards and vineyards.

"Cherry Rootstocks" (Bulletin 319) by Francis M. Coe, Agricultural Experiment Station, Logan, Utah.—The history and status of the cherry rootstocks problem in Utah and the U. S. are reviewed in this bulletin and 14 years' results from a sweet cherry rootstocks test orchard on open porous soil at Farmington, Utah are reported.

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"Tested and Proved" SPRAYERS

From coast to coast, you'll find sprayers with the "Diamond-H" in the orchards of America. To the many growers who have made Hudson Sprayers their first choice, this emblem is more than just a trade mark. It stands for "perfection of application"— for long continuous performance under tough conditions—for low-cost, effective spraying season after season. Ask your dealer to show you the best sprayers—the ones with the "Diamond-H".

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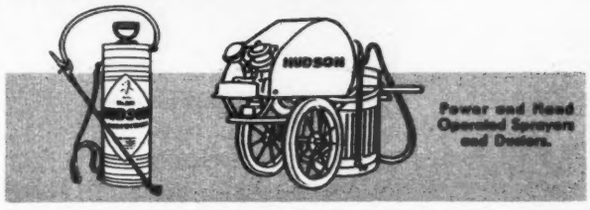
Chicago 11, Illinois



Power and Hand Operated Sprayers and Dusters.

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2000° F controlled heat quickly, easily destroys seeds, roots, brush, poison ivy, wild morning glory, Canada thistle, other unwanted growths. Many uses: splitting rocks, burning stumps, sterilizing poultry houses. Burns kerosene. Does the work of 4 men. Safe, easy to use. 10 day trial. Satisfaction guaranteed. Free catalog.
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Advertisement

DATE PRODUCTION IS EXPANDING

THE U. S. date crop 20 years ago was a million pounds; in 1944 it was 18 million pounds. Date production in the United States is only a drop in our sea of farm activity, but the recent expansion, says the Agricultural Research Administration, has gone a long way toward supplying our demand for this concentrated fruit.

The date is a crop of great antiquity that was brought to coastal areas of the American Southwest by the early Spanish missionaries, even before 1800. But the crop was of slight importance until taken to the hot interior valleys. Real commercial development started about 1890 when the U. S. Department of Agriculture began making importations of the best old world varieties. Dates have been grown for more than 5,000 years, but modern cropping methods have been developed largely in this country.

Before the Second World War, the U. S. imported about 50 million pounds of dates a year over a ten-year period. Date growing is expanding and new varieties are being tried out, and since production methods are improving, still larger production is expected.

A recent Circular (No. 728) issued by the Department for date growers, says that of the total of about 3,775 acres in dates in this country, 500 acres are in Arizona and the rest in Southern California.

From where I sit ... *by* Joe Marsh

Ollie Mapes and the Streamlined House

The other day a construction firm set up an exhibit in town. They built a new "house of the future"—and invited folks to see it.

Drew quite a crowd—with the women sighing over the shiny kitchen, and the men admiring the heating units and insulation.

All except Ollie Mapes. He looks around a spell and goes home to his old-fashioned farmhouse. When I get there, he's sitting before his fireplace, with his feet on the screen, looking very contented.

"You know," quotes Ollie, "it takes a heap of living to make a home."

Looking around, I see what Ollie means. A room crowded with memories of a life well spent—and the friendly habits of a happy home, from a blazing old-fashioned fire, to a mellow glass of beer with friends. From where I sit, those things do more to make a home than modern streamlined gadgets.

Joe Marsh

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A. P. S.

(Continued from page 21)

asking; Diehl of Kansas City, a modern St. Nicholas; Perkins of Argentine, who saw that the ladies never wanted attention; Espenlaub, Dean, Holman, Smith, young and unattached "Doc" Eyman, of whom no one knew anything, but who was always in the front, and Goodman, but when it comes to Goodman, nothing but a book will tell of his manifold charms.

Imagine all these men and as many more good fellows, together with twelve women, who were strictly in it, and then let your fancy run riot as they steamed away down south on the Kansas City Southern railway towards the great fruit orchards which lie along the line of that road.

And then, after a thousand miles along the lines of the Southern and the 'Frisco, returning to Kansas City via the 'Frisco, with interesting thoughts of the great orchard district and pleasant memories of new and old friends.

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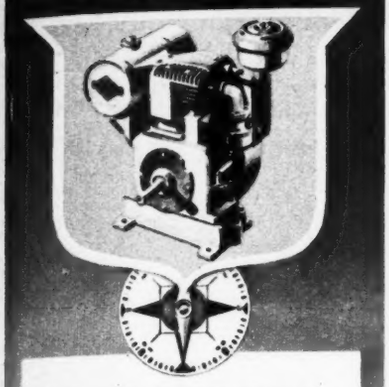

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ARMSTRONG SPRAYER

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JONARED APPLE

AMERICAN FRUIT GROWER has received so many requests for the name of the apple reproduced on the January, 1946 cover that a portion of this cover photograph is repeated here with the name and and a brief description of the variety.

The Jonared apple, on which U. S. Plant Patent No. 85 was granted to Stark Bros. Nurseries of Louisiana, Missouri, is a new apple variety noted for its earlier coloring and the deep blazing all-over red color of the fruit which make it an important commercial variety.

The Plant Patent for this apple states, "The Jonathan variety of apple, from which the new variety originated as a sport, bears a closer resemblance to the new variety than any other variety. In fact the characteristics of these varieties are substantially the same in all respects except in time of coloring and color of the fruit. The fruit of the new variety attains its color approximately two weeks earlier than the Jonathan fruit, the usual color of the latter, being lighter and more or less striped or splashed as distinguished from the deep blazing all-over or solid red color of the new variety."

BOOK REVIEW

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By Arthur D. Herrick

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Excellent for Control of Chewing Insects. Chemically refined ALORCO Cryolite can bring you all these Advantages:

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IS IT A PLUM OR A PRUNE?

(Continued from page 9)

species of Prunus? No they are not. What about horticultural varieties of plums? Are some varieties definitely prunes and others plums? Perhaps, but not always.

Then, upon what basis are plums distinguished from prunes? The answer is rather simple and easy to remember. In the first place a prune is a plum, if you consider the name plum as the basic name. A definition for a prune is, *a plum that can be successfully dried.* This is the fundamental difference between the prune and all other plums. Strangely enough, practically all the plums that can be dried fall in the class Prunus domestica or European plums as previously mentioned. The American, Japanese, Myrobalan and other types of plums do not make satisfactory dried plums or prunes.

Not all European plums can be dried however, only certain ones. The plums that can be classified as prunes then must meet certain requirements. The plum must contain a large proportion of solids, particularly of sugars. This makes possible the curing of the fruit without removing the pit, into a firm, long keeping product, the prune.

For market, prunes may be classified into three general groups: (1) Italian prunes, all dark-colored varieties, (2) Petite prunes, all amber-colored ones and (3) Silver prunes, all light colored ones. In a few instances a particular variety of prune may be marketed as such if it has exceptional quality. Groups (2) and (3) consist largely of a few varieties of the Japanese type of plums that dry fairly well. The Italian group is by far the largest found on the market. The specific variety Italian Prune has made the Pacific coast famous for its prune production.

Other varieties of the European or Prunus domestica type that are grown as prunes for drying include Stanley, French Prune, German Prune, and Imperial Epinuse. These same varieties of prune plums are also grown in both the Pacific area and the Eastern states for fresh market and processing.

In conclusion, if a plum can be satisfactorily dried it can be called a prune.

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Ramblings OF A HORTICULTURIST

Discovering a Dwarf Apple

IT is a most remarkable thing what extraordinary developments have occurred by chance, and horticulture, as well as other sciences, has had its unique and rare discoveries too.

In a recent visit to Iowa State College at Ames, Iowa, I was exposed to just such a horticultural discovery—It has to do with a particular type of dwarf apple tree.

Long about 1924, the late T. J. Maney, professor of horticulture at Iowa State College, paid a visit to his friend, H. Walton Clark at Fairport, Iowa. Mr. Clark was biologist at the United States Bureau of Fisheries and Biological Station at Fairport, and also an enthusiastic amateur horticulturist. As Professor Maney approached the house he noticed an apple tree growing in a bucket setting on the step, and that the tree was just loaded with fruit. The sight was of more than casual interest to Professor Maney. Here was an apple tree, not over six feet tall, growing more or less as an ornament and hanging full of large attractive apples. As he met his friend, Professor Maney asked from where the tree came.

So Mr. Clark told the interesting, but scant, history of his prolific dwarf apple tree. As an amateur horticulturist, Mr. Clark had become a keen observer of nature's extravaganza of change and variation. Just a few years previous to Professor Maney's visit, Mr. Clark had been in Muscatine, Iowa, and there found growing in the garden of an old lady, a dwarf apple tree. From this tree Mr. Clark propagated his own dwarf trees.

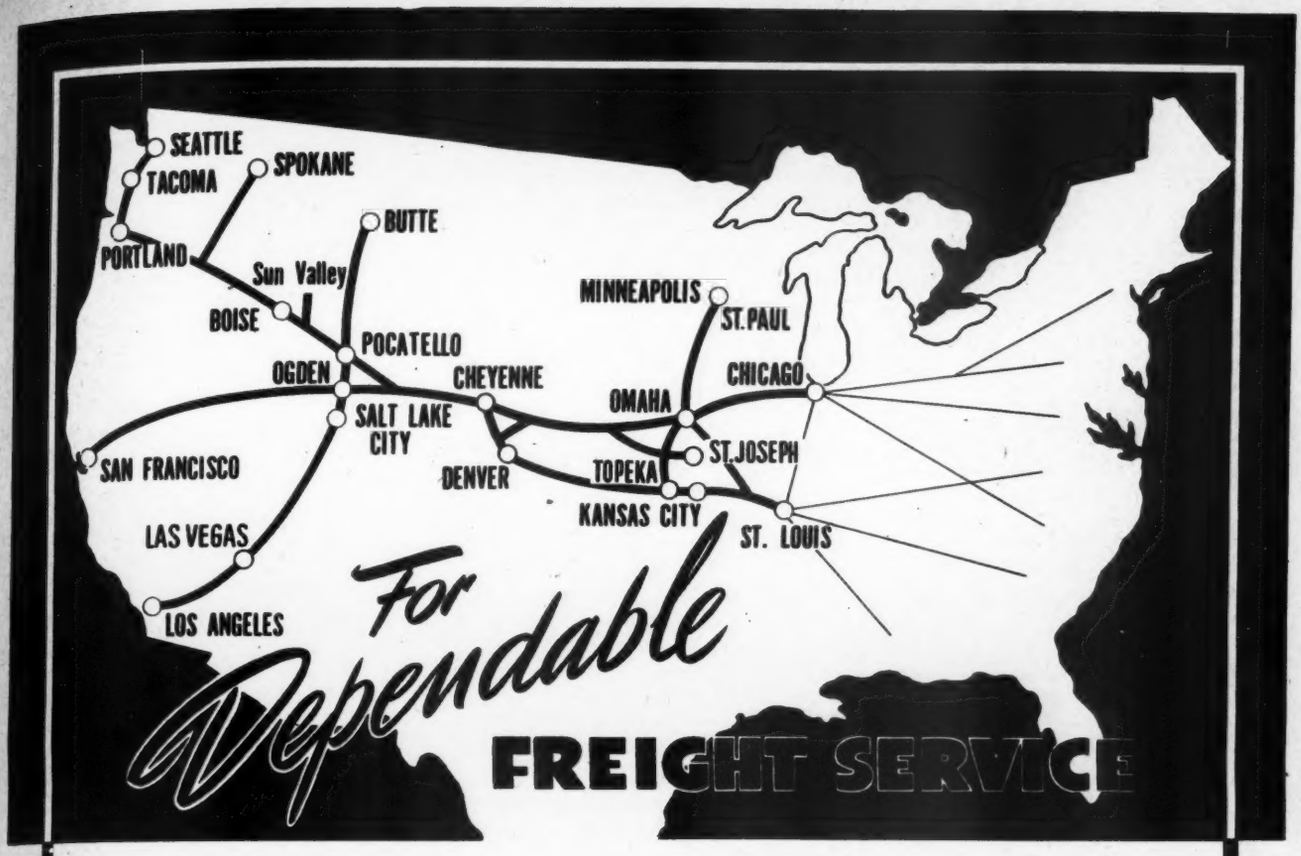
As the story goes, the lady's son, who was a sailor, brought the original stock from South America. And this is the only bit of factual history about the origin of this particular type of dwarfing stock. Mr. Clark had recognized in it, upon his first visit to the lady's garden, the quality of extreme hardiness. This, because during the some twenty odd years that the tree had grown in the garden, the temperature had dropped to as low as 20 below zero.

Here is a planting of dwarf apple trees at Iowa State College, Ames, Iowa. The trees, which are worked on the Clark dwarf rootstock, are 9 years old and measure from six to eight feet in height. This is one of the most promising hardy dwarfs.

From Mr. Clark's tree, Professor Maney took scion and budwood back to the College's experimental fruit plantings and began a series of tests of the stock. Studying its characteristics closely, the horticulturist was able to conclude that it had probably originated as a seedling of the original Paradise apple tree of English origin. But it is distinctly different from the Malling dwarfing stocks which have been segregated from the Paradise and Doucin stocks at the East Malling Research Station in England, and now prominent in America.

Professor Harvey Lantz of Iowa State's horticulture department, took me into a thrifty planting of nine-year-old trees budded on the Clark dwarf. The trees were dormant, but their productiveness was much in evidence by the round, plump buds. Two- and three-year-old trees begin to bear if well cared for and mature trees attain a height of only 8 or 9 feet. A lot must be learned about these dwarfing stocks yet, but it is evident that they may become an ideal type of tree for the home orchardist. They do not present much for the commercial apple grower at present, but as long as our research horticulturists keep working with this subject, we should suspect that something in the way of an improved rootstock or intermediate stock should come out of it eventually.

Perhaps you are as interested in the method of working the desired variety on the dwarfing stock as I was, so here is the method employed by the Iowa horticulturists. A root stock of Virginia or Hibernal crab is grown for its good, extensive root-system. The crab seedling is then budded to the Clark dwarf. After one season's growth of the dwarf bud, a bud of the desired variety is inserted in the dwarf growth 2 or 3 inches above the bud union of the previous year. This makes a tree of three kinds of wood: a root of Virginia or Hibernal crab, an intermediate stem piece of the Clark dwarf and the top consisting of the desired variety. Golden Delicious, Delicious, Starking, Jonathan, Grimes, Edgewood, Secor, Early McIntosh and Erickson are varieties which have proven adaptable on this dwarfing stock in Iowa.



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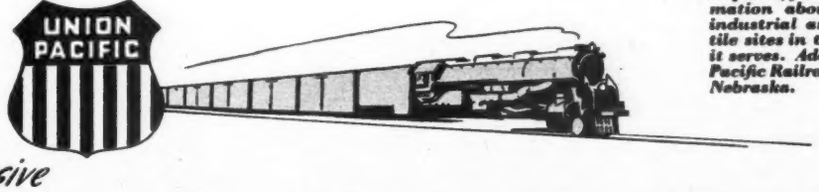

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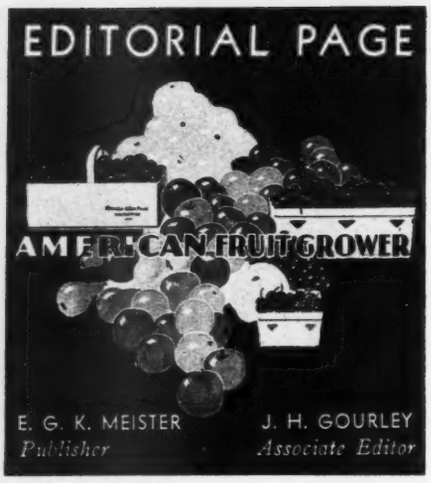

Outlook for Foreign Trade

AGRICULTURE, as well as industry, is facing its reconversion problems—and well on the top of the list is the question of the revival of foreign trade in agricultural commodities.

During the war, fruit growers and farmers met the food production goals that were placed before them. Now with peace, programs must be developed that will promote trade and insure continued peace.

And just what are the prospects for foreign trade in fruits? During the next few years, such exports are not likely to be very existent. True, there are many would-be consumers in foreign lands, but enough other conditions exist that are likely to check the export of horticultural products.

In a recent talk on the foreign trade outlook given before the Farm Bureau in Chicago, C. W. Kitchen, Assistant Administrator of the Production and Marketing Administration of the U.S.D.A. (since resigned to become executive vice president of the United Fresh Fruit and Vegetable Association), outlined these limiting factors as follows: (1) available dollar exchange; (2) deficiency in purchasing power in importing countries; (3) competition from areas with lower price structures; and (4) probable increased demand in domestic markets for most of these products.

The principal receivers of American exports of fresh and processed fruits were the continental countries before the war in Europe. Even with special credit arrangements, most of these countries will have difficulty in paying for U.S. imports during the next few years. The limited dollar exchange, mentioned by Mr. Kitchen, that will be available in these countries will buy the so-called staple foods before the semi-luxury foods can be considered. Fruits are expected to fall into the latter class.

Another factor that will perhaps limit imports from the U. S. will be the attempt of foreign countries to rebuild and expand their own food production.

An additional point brought out by Mr. Kitchen is that in most countries where horticultural commodities are produced there will be a desire to expand foreign trade. Competition for world markets may mean purchase and other trade arrangements which will increase the movement of horticultural products into the European continent from areas competitive with the United States. The attractiveness of such arrangements would be increased, too, by lower costs of production in these same competing areas.

Says Mr. Kitchen, "It is generally accepted that the United States will continue to maintain a high standard of living for a long time to come. The United States then will be in the position of exporting from a high price area to areas of relatively lower price levels. If the purchasing power of United States consumers is maintained at the level now set as a goal—something less than the record high wartime level, but substantially above the pre-war level—we can be sure that the best market for our fruits and vegetables will be at home. Under these circumstances, only a limited number of fruits and vegetables may be produced in sufficient volume to provide a surplus for export at prices obtainable in export markets . . . "

Even though the above supposition is true, it is still desirable to maintain export outlets, and the over-all marketing programs of the U. S. should include plans to develop foreign trade. The limited purchasing power in some countries may be changed in the light of negotiations by some countries for financial assistance from the United States. And any financial aid from this country should help to create a market for U. S. products. Such financial assistance, too, may also help to ease the trade restrictions.

The Horticultural Industry Advisory Committee on Foreign Trade, recently appointed by the U. S. Department of Agriculture, is to help the Department in formulating a program that will meet the best interests of all concerned. Both growers and handlers of the various horticultural commodities are on the Committee and thus the group should be well qualified to advise on the many aspects of the foreign trade situation that will face the industry.

It is hoped that the horticultural industry will assume increasing responsibilities in the solution of national and international problems.

Balanced Nutrients

MUCH IS WRITTEN and spoken about "balance" with reference to soil fertility. It is often difficult to know just what is meant by this. Certainly there is evidence that the absorption of large amounts of one element will depress the absorption of certain others and this may be reflected in lack of balance. Whether you term this "antagonism" or something else makes no particular difference from a practical standpoint.

Cases in point seem to be appearing in orchards here and there. In southwest Michigan where the pH of the soil is quite low, heavy applications of lime were made to peach orchards which resulted in definite deficiencies of both potassium and magnesium. In sections of New York State potassium was found to be deficient in orchards and when this was corrected magnesium deficiency resulted.

It has been shown that with peach trees in sand culture that as the supply of potassium increased, the amounts of both magnesium and calcium decreased in the tops of the trees. Although the phosphorus did not always decrease, an inverse relation between its accumulation in the shoots and the supply of nitrogen, was sufficiently evident as to indicate the fundamental nature of the repressive tendency of nitrogen on phosphorus. There has also been found a comparatively strong repressive action of phosphorus on nitrogen and of nitrogen on potassium, calcium and magnesium.

We apparently can no longer add any element in continuous excess without danger of getting into trouble with others, at least on some soil types.

It has been shown in Florida that heavy applications of nitrogen to grapefruit and oranges result in thick skins and acid, low quality fruit. And like other fruits, too high a carbohydrate content in relation to nitrogen gives fine quality but not enough yield. So it becomes a matter of compromise between the best quality and sufficient yield to make the venture profitable.

Magness and others have shown that with every increase of one-tenth percent nitrogen in the leaves there is a corresponding loss of five percent of fruit color.

While we cannot offer proof at present, we would be of the opinion that "imbalance" would be less likely to occur where a mulch is used and where many elements ultimately reach the soil through leaching and decomposition. Such a soil is high in organic matter and thus gives a more stabilized effect.

PROTECTING

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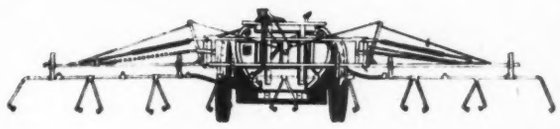

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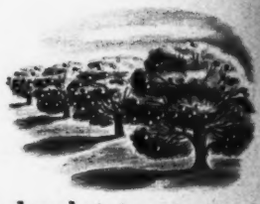

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